Veterinary Medicine

VOL. XIX JANUARY, 1924 No. 1

Editorial

Developments in Veterinary Parasitology, During the Past Fifteen Years

By Maurice C. Hall, Associate Editor

TO summarize the developments in the field of parasitology is a somewhat dangerous procedure. No one can be thoroughly in touch with the entire field and everyone has a certain bias in evaluating the importance of topics and of individual workers. Faust and Nicoll have each published recent summaries, and these show the possibilities for disagreement in writing such summaries. It is especially dangerous to name individual workers, as some names must be omitted and these names may be those of outstanding workers forgotten at the moment or working in fields with which the writer is less familiar than in the case of other fields.

This Summary Essentially Veterinary

However, if it is kept in mind that this summary is primarily from the standpoint of veterinary parasitology, and with especial reference to its interest for the American veterinarian, the necessary omissions in this paper may be overlooked. In passing it may be said that there are no intentional omissions on personal grounds. Fortunately there are among parasitologists a high *esprit du corps* and a most gratifying spirit of friendship and cooperation, something which does not prevail among all scientific and professional groups. In this connection it may be mentioned that the Helminthological Society of Washington, the only organization in the world concerned primarily with the subject of parasitology, so far as the writer is aware, is also the only organization which has a code of ethics and does not have a constitution or by-laws.

INVESTIGATORS

In the past fifteen years or so, many of the outstanding investigators in parasitology have died. France has lost Barrois, the illustrious Blanchard, Delage and the Russion Metchnikoff, who was a pupil of the great Leuckart and who worked in the field of zoology and parasitology before he transferred to that of bacteriology and allied topics.

Germany has lost Huber, Linstow, Looss and Luehe; Italy, Dohrn and Setti; Austria, von Ratz; Belgium, Ed. van Beneden; England, Manson and Sandwith; Japan has lost Ijima (recent reports indicate that none of our Japanese colleagues have perished in the recent disastrous earthquake and fire at Tokyo and elsewhere); Russia has lost Kholodkovsky; and Denmark, Krabbe.

In the United States we have lost by death Douthitt and Foster, both promising young workers, Law, Lefevre, Wing, who for years endeavored to impress on the American sheepman the importance of the sheep stomachworm and its control, Willets, and Winchester, a well known veterinarian whose very interesting work on *Strongylus vulgaris* in 1892 has quite generally been overlooked by parasitologists and by his veterinary colleagues.

Outstanding Men Have Retired

Some outstanding men have retired, notably Neumann of France. Railliet has retired from teaching, but is still active in research and publication and is still the outstanding authority in the wide field of veterinary parasitology. In Germany, Braun, the author of two monumental works on trematodes and cestodes as well as many other important works, has apparently been inactive in research of late years, but one paper by him having come to the writer's attention since 1915.

New Men Rising to Prominence

In most countries other men have risen to take the places of those who have died or re-

25127

tired, and in many countries, including Australia, Roumania, Hungary, Holland, South Africa, Canada and the South American republics, there are prominent workers where 15 years ago little or no work was being done in parasitology. There has been a notable increase in the number of excellent investigators in Japan, in England and her colonies, in France and her colonies, in Russia and in the United States. Germany has not shown a corresponding increase in the numbers of workers, although she still has excellent representation with such men as Fuelleborn, Martini, Rauther and others. In Italy it is not yet clear as to who is to replace the older workers such as Grassi, Parona and Perroncito, when these workers retire. In Switzerland most of the older workers are still active and younger men are being added to the ranks. In some countries, such as Austria and the Scandinavian countries the prominent workers of today are those of 15 years ago and there is no marked loss or gain in workers.

Increased Interest In the United States And Canada

Fifteen years ago the subject of parasitology received little attention from veterinarians in North America and was regarded as a subject of little or no importance aside from its bearing on meat inspection. The programs of the American Veterinary Medical Association and those of the various State associations rarely included any papers on parasites. Fifteen years ago there were few men in the United States calling themselves parasitologists and few entitled to such a designation.

Curtice had done brilliant pioneer work on the Texas fever tick, ox warble, nodular worm, fringed tapeworm, and other topics, Smith and Kilborne had published their classical and fundamentally important work on the transmission of Texas fever, Stiles and Hassall had made many important contributions to our knowledge of veterinary parasitology, Ransom had done some outstanding work on the life history of the stomach worm and was a recognized authority in veterinary parasitology, Mayo had shown the value of the arsenical dip for destroying ticks, Linton had published a large amount of work on fish parasites, and Pratt, Allen J. Smith, Verrill and Ward were prominent figures in the collegiate field.

In spite of the work of these men, much of it in veterinary parasitology, and in spite of the fact that Curtice, Hassall, Kilborne and Mayo were themselves veterinarians, little was known of their work by American veterinarians. Outside of the government service, a few veterinarians, such as Bitting, Cary, Dalrymple, Francis and Kaupp, had done some work in parasitology, but these were exceptions.

General Interest In Parasitology Increasing Among Veterinarians

Today there is a very general interest in parasitology on the part of American veterinarians. Papers on the subject appear on almost all programs of the American Veterinary Medical Association and of the State associations. The number of parasitologists in North America has increased very greatly. The Helminthological Society of Washington met for the first time in 1910 with 5 members present. Today it has an active membership of about 35 and has 33 American corresponding members, with approximately the same number of foreign corresponding members. At the present time no comparable organization in parasitology could be formed probably, outside of London and Paris.

Systematic Work Required

Systematic work, including morphology and taxonomy, is something which many veterinarians regard as academic, uninteresting and almost unnecessary. It is, in fact, of fundamental and primary importance. It is necessary if we are to know what parasite we are talking about when we discuss the life history, biology, pathology, treatment or prophylaxis of a parasite. Highly interesting and potentially valuable investigations have been found to be worthless when it has been shown that the facts presented did not deal with the species to which they were attached, and after material has been studied and discarded it may be necessary to repeat the entire investigation to determine just what species was involved.

Problems Confusing

It is a source of great confusion to blend the life histories of two parasites in cases where both are present and regarded as one, and it confuses all the conclusions that may be based on such a life history. Misidentifications are similarly dangerous. For illustration, the armed cysticercus in sheep musculature was regarded for many years as that of *Taenia solium*. The logical prophylactic measures centered on *T. solium* in man. Ransom has shown that this cysticercus is that of a dog tapeworm, *Taenia ovis*, thereby directing attention to the true carrier.

MONOGRAPHIC AND OTHERWISE USEFUL REFERENCES

In systematic work, the large and usually dull monographs are especially valuable. They collect under one cover the facts scattered through scores or hundreds of papers, and thus make it possible to study new forms or identify old ones with the minimum amount of effort. Not infrequently appearance of such monographs results in greatly increased activity and interest in the groups covered. They serve the parasitologist as the monographic "Pathology and Therapeutics" of Hutyra and Marek serves the practising veterinarian. Many short papers, however, are valuable for their synopses, keys, etc.

References of Value to the Veterinarian

Among the more or less recent systematic papers of value to veterinary parasitologists are the following: Those on ticks by Blanchard, Neumann, Nuttall, Cooper, Warburton and Robinson abroad, and Banks and Hooker, Hunter, and Woods in the United States; on monostomes by Kossack abroad and by Harrah in the United States; on amphistomes by Maplestone abroad and by Stiles and Goldberger in the United States; on the Heterophyidae by Ransom in the United States; on larval trematodes by Kobayashi abroad and by Cort and Faust in the United States; on the trematode parasites of birds by Johnston and Nicoll abroad; on the tapeworms of birds by Clerc, Fuhrmann, Lopez-Neyra, Johnston, Meggitt, and Railliet abroad and by Ransom in the United States; on the tapeworms of carnivores by Hall in the United States; on the heterakids by Lane, Travassos, Barros Barreto, and Railliet and Henry abroad; on the genus Physaloptera by Ortlepp abroad; on the Thelaziidae by Railliet abroad; on the genus Capillaria by Travassos abroad; on the Trichostrongylidae by Travassos and Neveu-Lemaire abroad; on the Strongylidae and included groups by Lane, Railliet, Railliet and Henry, and Ihle, and the collective papers in this group by Boulenger, Yorke and Macfie, Ihle, Kotlan and others abroad and by Ransom and Hadwen in the United States; on the Acanthocephala by Travassos abroad and by Van Cleave in the United States; on the linguatulids by Sambon abroad; on the nematodes of ruminants by Ransom in the United States; on the parasites of birds by Neumann abroad; a key to the adult nematodes of equines by Riley in the United States; on parasite eggs and larvae in the feces of horses, cattle, sheep goats, swine, dogs, cats, foxes, and poultry by Hall in the United States; the numerous miscellaneous systematic papers by Railliet and Henry abroad; and many other works which can not be cited here.

(To be continued)

THE DANGERS OF PUBLICITY

The veterinary like the medical profession has some ultra-conservative members who fear the proposed campaign of advertising and selling professional services may have a debasing influence the exponents may live to regret, but, admitted that it would be rather bold for any one to take an entirely opposite view and advocate the "Barnum" system, there seems to be no question whatever that under the existing conditions of American social and business progress, an enterprise that punishes itself with self-obscurity is left trailing at the end of the procession. Medical service, no one will deny, in view of the danger of losing dignity, prestige, and confidence, is not to be advertised in the true sense of the word, and we know no one, except amongst fakirs, advocating any such a departure from the existing order and custom. On the other hand there is a very wide-spread and growing impression among thoughtful veterinarians that publicity with the usual altruism as its guide and faith is needed for the general welfare, not only of those engaged in the practice but for the good of all. The practice of medicine is a necessity with many of its possibilities unknown to the people. The objects of publicity (advertising if we want to use the harsher word) is to tell the people what medicine can do for them. In this sense medical publicity is a helpful and a much needed reform and can work no harm unless the limits of reason are exceeded by verging too much toward unvarnished, commercial exploitation. In an address before the Chicago Medical Society, the managing editor of one of the large dailies said "In twenty-two years in the newspaper field I do not remember ever having seen any statement or other offering that could be regarded as publicity coming from the American Medical Association. Although your profession may be under fire, you do not even resort to self-defense, the first law of nature."

Here seems to be the crux of the situation in both medical and veterinary circles. We not only do not get out essential facts to the people who would benefit thereby, but also have failed completely, as far as veterinary science is concerned, to win a fixed orientation in the wheel of progress; and to still further obscure

and discredit ourselves "we do not even resort to self-defense under fire."

Medical publicity, as VETERINARY MEDICINE has previously said, is not to be regarded in the same sense as an advertising program for a commercial product; it is a movement to take the public into its confidence, in contradistinction to the traditional policy of allowing medicine to be shrouded in mystery. The piety upon which the opponents of publicity depend to protect our altruistic enterprise against indignity, is a worse evil to all concerned than a program that would tell the full unexaggerated truth, about our occupation, the mission it has to fill, the need of its development, as well as all the many little things the veterinarian can do for the individual.

Publicity is not a passing hobby as some of our correspondents believe; it's a crying necessity, and its dangers in our opinion are more imaginary than real.

SIR ARNOLD THEILER COMPLIMENTS US

The following article which is a clipping from the Los Angeles Daily Times, sent us by Dr. Hal Simpson of Pomona, California, and is published for the good it may do to those of us who see nothing but pandemonium in the veterinary profession of the United States, and to lend whatever enchantment and whatever encouragement it may contain.

"Veterinary science is on as high a plane in the United States as in any country in the world, in the opinion of Sir Arnold Theiler of Pretoria, director of Veterinary Education and Research in the Union of South Africa, who is a Los Angeles visitor and a guest at the Alexandria."

"Sir Arnold, who is visiting America for the first time, was sent by his government as a delegate to the World's Dairy Congress, which was conducted in Washington in October. Since that meeting he has been touring the country and has delivered lectures at Harvard. Cornell, Columbia and a number of the other leading American colleges and universities.

"'My specialty is animal pathology,'" he said, '"and I knew by reputation and from communications most of the leaders in my line in America. I have taken great pleasure in meeting these men here and becoming acquainted with others associated with them'."

"'Sir Arnold said he had spent several days in Texas where he had discovered diseases of cattle similar to those affecting the herds in South Africa'."

"'We have exerted ourselves to combat these maladies and have been fairly successful,'" he said. "'I was in a position to give my Texas brethren some pointers in this matter and at the same time I learned several things from them myself. Your veterinarians rank amongst the ablest in the world'."

DON'T BE ESQUIMAUX NOR ZULU

A practitioner living in northern Maine writes that he is not interested in the diseases of bees which is quite natural. Neither does the one from southern California give a darn about frost bites, but still does not seem expedient just at this particular period of veterinary history to publish both an arctic and a tropical edition as much as we would like to please everybody, and besides we sense in this complaint one of the ills of the veterinarian—the disinclination to educate one's self for education's sake. To confine one's interest only to such medical facts as can be turned into dollars and cents is one of the sure roads to failure.

Furthermore, the grey matter is not like a bag; it can always hold a little more without causing distress.

OBSCURE LESIONS AND THE TUBERCULIN TESTS

A study of the obscure parts of the body in which bovine tuberculosis is found shows that no important organ or portion of the body is likely to resist the infection. The skin, bones, eye, heart, udder, and other regions where the disease is seldom looked for may be the seat of tuberculous infection.

According to the records of the U. S. bureau of animal industry, lesions of the disease have been found in 57 different parts of bovine animals. So-called obscure lesions have been responsible in some cases for livestock owners to doubt that cattle which reacted to a tuberculin test were actually diseased.

The increasing knowledge of tuberculosis and its eradication, however, according to department of agriculture veterinarians, shows that the disease is practically always present when an animal reacts to the tuberculin test. But it is difficult in some cases to find the physical signs, owing to the large masses of flesh and tissue that must be examined to find the proof. More frequently the disease is plainly evident on the inside of the body wall, on the liver, in the lungs or tissues that are visible at the time of slaughter.

HOG CHOLERA ON THE INCREASE

Reports received from various sections of the country by the United States Department of Agriculture indicate that hog cholera is becoming more prevalent this fall than in any year since the decline of the last extensive outbreak, which reached its height in 1914.

During the spring and early summer isolated outbreaks appeared here and there in various States. Owing to the comparative freedom of most States from cholera, the expense of procuring serum, virus, and veterinary service, the high price of corn and the seemingly low price of hogs, many farmers failed to have their herds immunized last spring,—as a consequence there is in the country an unusually large proportion of susceptible animals. Reports show that cholera has appeared recently in communities which have been free of this disease for 25 years. In many localities it gained considerable headway before hog raisers realized the real nature of the trouble. In too many instances the disease was diagnosed as hemorrhagic septicemia, influenza, indigestion, or some other trouble than cholera.

Advertising Circulars Cause Confusion

The large amount of advertising literature sent out by commercial concerns supplying hog remedies has had the effect of producing much doubt and confusion among swine growers in regard to the diseases of swine, and also considerable indecision among veterinary practitioners in some sections in regard to diagnosis. No doubt many herds in which "breaks" occurred this fall have been allowed to die from hog cholera because veterinary practitioners have been reluctant to diagnose cholera in herds which had previously received the simultaneous treatment. Bureau veterinarians who are cooperating with the State authorities and devoting their entire time to hog-cholera work often have difficulty in convincing farmers that the disease from which their hogs are dying is hog cholera instead of worms, indigestion, hemorrhagic septicemia, "mixed infection," or some other disease concerning which they had obtained information from advertising literature.

Notwithstanding all that has been said of other swine diseases, hog cholera continues to be the greatest menace to the swine industry of this country and both hog producers and veterinary practitioners should keep this in mind. The active virus of cholera is present in the country continuously and it is not safe when one or more hogs in a herd get sick to delay from day to day in seeking assistance in the hope that the condition may disappear. Most of the losses this fall are due to the neglect of farmers to call their veterinarians in time to administer the preventive treatment before the infection has had time to reach all of the swine in the herd. Remember that the serum treatment is a preventive and not a cure. Unless hog owners and veterinary practitioners are on the alert and act promptly, the losses will be unusually heavy this fall.

MALTA FEVER NOT NEW IN THIS COUNTRY

Malta fever is not a new disease in the United States. Authentic cases of the disease occurred in Texas at least twelve years ago and cases that were probably malta fever were observed prior to 1890. Unless efficient control measures are inaugurated, the chances are that this disease will ultimately be rather widespread in the southwestern states because conditions are favorable for its existence in that territory.

According to reports, it is evident that malta fever is now endemic in certain sections of the southwestern states. Veterinarians should bear in mind that it is difficult to positively diagnose malta fever early in the course of an outbreak, unless laboratory tests are made and the B. melitensis identified. Health officers should make a careful study of the milk supply from goats and should there be any possibility of malta fever existing in milch goats, the sale of their milk should be prohibited.

THINKS THIS OPHTHALMIA A DEFICIENCY DISEASE

Canham describes an interesting type of ophthalmia in cattle in the Veterinary Journal, Vol. 79, No. 11.

The ophthalmia described in cattle as occurring in the union of South Africa is rather interesting. Some investigators are apparently of the opinion that this condition is the result of invasion of the structures of the eye with a filaria. On the other hand, it has been found that many cattle infested with filaria throughout this section of the country are never affected with ophthalmia. In other words, the ophthalmia as described by Canham may be a result of deficiency of some necessary ingredient in the feed.

CIRCULARS TO THE RESCUE

The proponents of farmer vaccination (farm bureau, commercial houses, et al) are doing a great wrong to the patrons they feign to assist. They are giving out the impression that hog-cholera is controllable by simply injecting serum and virus and are creating a dangerous sense of security among hog owners that would not be entertained by those who know the limitations and the dangers of preventive biologics.

With these facts gradually dawning upon the unsuspecting and misinformed farmer, the proponents in their desperation to make their system less of a hazard, are now trying to teach the details of veterinary sanitary science heretofore lacking in their programs by broadcasting circulars of instruction. In view of the confusion of knowledge we have of swine diseases, the finality may well be left to the imagination. As the pitfalls of diagnosis, the question of unknown carriers, the mysteries of "breaks", the care required in storing, handling and administering serum and virus, and other items too numerous to mention comprise the budget of knowledge the veterinarian must take to the hog lot, it does not seem a very sound policy for the hog industry to pin its faith in the educational value of the commercial circular, the lay press, or the stump speech. The veterinarian will always be the better qualified and to him will finally rest the responsibility of unscrambling the mess that is being produced by the unwise system in vogue.

Farmer vaccination is doomed to fail, but it is a pity that the innocent hog owner must suffer the consequences of man-made outbreaks, in the interim.

The following clipping from the Canton (Illinois) Register, published in the heart of the region where farmer vaccination is most ardently advocated tells a story, a sad, sad story of the existing and impending situation insofar as at least one community is concerned:

"Clarence Polhemus, who lives on the Woods farm noticed that his hogs were sick Sunday morning, a week ago. By Monday several had died.

"These hogs had been treated for cholera, the first that Polhemus had had treated. They are the first he has lost in eight years of hog raising.

"One man in Fairview township spent $200 in treatment and then lost his whole herd. The Welsh brothers had a similar experience. Indications are that a sure preventive of cholera has not been found yet. One thing is certain, there will not be many in this vicinity to treat next year."

Farmers may vaccinate their hogs, laymen may administer the tuberculin test, stock yard employees may inject hemorrhagic septicemia bacterin, all to their hearts' content, but it does seem short-sighted to depend entirely upon any biologic to control any disease, because in disease control there are many things to take into account which only the trained and experienced can plan and put into effective operation.

It is about as sane for the laymen to try to eradicate hog cholera by cheapening the price of serum and virus and administering it themselves as it would be for the public health service to sell cheap vaccine and encourage people to vaccinate one another as the sole means of controlling small pox.

INTESTINAL SPIROCHETES

Parr gives the following summary of a result of an investigation of intestinal spirochetes:

"Intestinal spirochetes are widespread among healthy persons of the Chicago region, being found in approximately a third of all such persons examined.

"It has been found that most of the laboratory animals also harbor intestinal spirochetes, the rabbit being the only exception thus far encountered.

"Intestinal spirochetes seem to enter into severe intestinal disorders in a secondary role in occasional cases, nearly a score of which have been reported from Germany and France. One case has thus far been described in the United States."

"A carbohydrate diet appears to discourage the presence of intestinal spirochetes and may even cause them to disappear temporarily. The ingestion of acidophilis milk has the same effect. Protein feeding may favor the presence of spirochetes if it does not produce a condition of such metabolic unbalance as to suppress the spirochetes.

"All animal inoculation work has been uniformly negative.

"Under favorable conditions, spirochetes may pass Berkefeld N filters probably in a vegetative form. I have found no evidence to show that intestinal spirochetes have a granule phase."

It has always been universally conceded that all forms of colds in the human were a result of bacterial infection. Jordan, Norton and Sharp have collected considerable informa-

tion and according to their report in the Journal of Infectious Diseases that the common cold is not a simple type of infection and in some instances probably not an infectious process at all.

DIET IMPORTANT

Diet is a very important factor in the maintenance of health of not only the human but also domestic animals. Pellagra is of dietary origin or at least the disease can be prevented by reducing the maize and increasing the animal protein in the food. Loin disease in cattle, rickets and osetomalacia are dietary diseases. Improper diet is the primary cause of colic in horses. Digestive derangements induced by proper diet predisposes to a variety of infectious diseases. Thus hog cholera is more prone to occur in swine that are not provided with a proper ration. Hemorrhagic septicemia is more prone to occur in animals that are not properly nourished. Necrotic enteritis in swine may be a sequel of improper diet, and the disease is intensified by solid foods and tankage.

Regulation of diet will practically eliminate digestive derangements and will largely diminish the ravages of many infective diseases.

STOCK JUDGING BY VETERINARIANS OF THE NORTHWEST

A year ago we had the pleasure for the first time to comment upon the prominent place the veterinary practitioners of the great Northwest were making for themselves as judges at the fairs of that region, and to suggest this departure as a splendid ambition to emulate elsewhere, as a movement to bring the veterinarian into another relation he is well qualified to occupy.

Again we are reminded that these same colleague are gaining more and more ground in this connection. Dr. Robert Prior was the handicapper and presiding judge of all the races at the Spokane fair; Dr. A. R. Gailbraith was starter of the races and also judged the Thoroughbreds, the Standard breds, the saddle horses, and the two, four, and six horse hitches of draft horses. Besides, we are informed that Dr. Pelton of Olympia was the livestock superintendent; Dr. Martin, in charge of the sheep division; Dr. Donahue, of the dairy cattle; Dr. Howard, of the horses division; and Dr. Mitten, of the hogs.

At the Washington State fair Dr. Gailbraith was starter of the races with Dr. Prior as handicapper and judge, and at the Ritzville horse show and the Oaksdale livestock show acted as judge of all the horse classes. At the Republic stock show Dr. Kenneth McKay of Colville judged all the live stock and he also officiated as assistant stock superintendent at the Spokane Fair.

The significance of these activities however computed cannot be over-estimated, and are again submitted as an inspiration to others.

COLDS OF CHICKENS

Poultrymen and poultry experts are all of the opinion that chickens very frequently suffer from colds, common coryza. The symptoms are sniffling, whiffing, wheezing and gasping for air. It attacks individuals, groups or whole flocks. Kennard of the Ohio Experiment station has observed that dust causes the same symptoms and that when the dust is from moldy straw the condition may be very fatal, and he mentions the fact that the respiratory system of the chicken is so complicated that an excess amount of any kind of dust is injurious.

These observations are important in that they draw attention to an etiologic factor in chicken diseases (dust) not generally reckoned with, and suggest at least that some of the so-called colds are in reality inflammatory conditions caused by kicking up dust especially from moldy litter.

The responsibility of informing the existing personnel of the veterinary profession on diseases of goats, sheep, fur-bearing animals, and bee, rests upon the veterinary journals. VETERINARY MEDICINE promises to "do its bit."

A colleague living in Berlin, Germany, sends us a letter the envelope of which is covered with 20 stamps of 2,000,000,000 marks each. In other words, it costs 40,000,000,000 marks to send a letter first class from Berlin to Chicago.

A while back no one ever thought of such a thing as clinical symptoms of abortion disease other than the actual act of aborting. Now observing practitioners find that animals many days before aborting have an abnormal condition of the udder which manifests itself by failure of the udder to shrink up after milking. the udder of a cow approaching abortion, in other words, does not collapse, remains large and sometimes exhibits a slight edema posteriorly.

KICKKOLLUM

An ounce of manhood is worth a ton of conceit.

If the public health service began to advise the people to go over the head of the family physician and report themselves to a public official when sick, it would not be committing a greater crime to the medical profession than the agricultural department does when it tells the farmer to report outbreaks of animal diseases to the county agent.

The veterinarian is the most logical and the most economical watch dog of the health of animals by reason of his close relations to the animal population, just as the family physician by reason of his close contact with the masses is the best public health policeman.

No citizen is likely to maintain a very high morale if men elected to public office are permitted to play fast and loose with his chosen vocation. Government interference discourages men engaged in any kind of work, brands them as insignificant, and prevents others from entering the same field.

In the case of the professions, government intrusion spells deterioration of the sciences concerned and destroys the ambition to study and exploit them.

Before any government, municipal, state or federal can see its way clear to pay its professional men a living wage it should not take away the work of those privately engaged in that profession, because such intrusion lowers the standard of such profession in the eyes of the people.

To broadcast information that men and animals can be treated cheaper by the government than by the practitioner is a poor way to encourage the study of medicine unless those engaged in this public service are properly paid.

It's getting harder and harder to convince a practitioner making from $5,000 to $10,000 a year that he is not as well qualified as the government veterinarian working for $1,600.

"The next time you use arecolin for colic in a horse try giving it in two doses of a half grain each thirty minutes apart, instead of a single grain dose. It works much better," says a Pennsylvania practitioner.

To prevent the spread of fowl typhoid: (1) Isolate all sick chickens; (2) destroy dead chickens by boiling; (3) move healthy chickens to uncontaminated ground; and (4) disinfect the house and plow the infected lots.—Animal Path. Dept., Univ. of Ill.

The evacuation of pus from the facial sinuses through perforation of the skull is seldom a complete success unless a free, large opening is made between the sinus and the nasal cavity as a permanent drainage.

A subscriber writes that he believes veterinarians do not use ichthyol as much as they should in both parasitic and non-parasitic skin diseases. Whether this is true or not, it will not be denied that the best dermatologists prescribe it almost universally for eczema, in other words for the mysterious skin eruptions of unknown cause.

Dr. G. Lames, of Dysart, Iowa reports that nuclein (Abbott) administered hypodermically is a specific for the distemper (snuffles) that is creating havoc among the cat population of certain districts of that state. He administers it in ten minum doses, and finds that a single dose is often sufficient to effect a cure.

Is cancer a generalization of a localized disease almost as everyone believes, or is a localization of a generalized disease as someone is very likely to prove—a breaking down of the trophic equilibrum, for example?

Sheep suffer more from parasitic diseases than any other class of animals. Most of the losses in sheep or the products of sheep such as mutton and wool, is due to infestation with animal parasites. Rotation of pasture, the provision of proper feed racks and drainage, as well as the restraint of wandering dogs, are valuable measures in the control of animal parasites.

General Section

Histo-Pathologic Conditions of Granular Vaginitis in Bovis

By L. E. Starr, Hay Market, Virginia

INFECTIOUS granular vaginitis is a chronic infectious disease of cattle, characterized by nodule formation in the mucous membrane of the vagina. It occurs in acute and chronic form.

The disease was first recognized as early as 1887 by Isepponi (1) and by Ehrhardt (2) in Switzerland in 1896.

Ostertag's (3) investigations were confined principally to etiology, symptoms and treatment. He isolated a streptococcus from the vaginal wall and clitorus of affected cows, which he considered to be the causative agent. It occurred principally as diplococci and short chains. It grows sparingly on ordinary media but fairly well on blood, blood serum or urine agar. It did not form indol nor liquify gelatine. Hecker (4) confirmed Ostertag's findings.

Ostertag says the first indications of disease are swelling of the vulva, redness, swelling and sensitiveness of vaginal mucosa with a muco purulent discharge.

Williams (5), however, says "the disease comes on insidiously. The first indication being the appearance of a few nodules in the vulvar mucosa, sharply defined above the surrounding epithelium, as pale yellowish or colorless transparent elevations, having a vascular girdle about their base. The nodules are 1 to 2 mm. in size.

According to Hess (6), the condition is ushered in by red elevated points which in a few hours change to red, transparent vesicles, later undergoing ulceration and finally they heal and persist in the form of nodules.

Jüterbock (7), however, in 4000 cases failed to observe vesicles at any stage.

The condition is very widespread over Europe and the United States. According to Raebiger (8), 90%-98% of the cattle in Germany and Williams (8), reports 95%-100% of the dairy cattle in the United States are affected.

Thom's (9) made some histological investigation concerning the disease. According to his investigations the nodules about the region of the clitorus are principally club shaped papillae of the papillary body. In other parts the nodules develop from follicles, causing a protrusion of the surface of the mucous membrane.

This paper comprises the results of the examination of 177 animals as follows: 164 clinically, 8 bacteriologically, 8 by means of vaginal smears and 13 histologically.

The clinical examinations were visual and palpitative. They were made by holding the labii of the vulva apart and carefully observing the mucous surface of the vagina for the presence of the nodules. Palpation, however, is sometimes necessary in order to detect the presence of nodules when situated on the roof of the vagina or if edema of the vaginal wall is present.

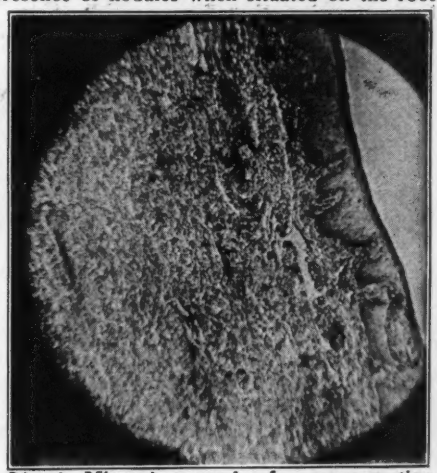


Fig. 1. Microphotograph of a cross section of normal vaginal wall.

The cows examined were all dairy cows in the University herd and at the State Farm for the Feeble Minded at Orient, Ohio. Of the

164 cows examined clinically 149 or 91% were affected.

The bacteriological examination was made in the following manner.

Cotton swabs were prepared and placed in clean test tubes, which were plugged with cotton. Tube and swab were then sterilized in the autoclave with live steam for 15 minutes at 15 pounds pressure.

With the aid of an attendant to hold the labii of the vulva apart, the sterile swab was rubbed gently over the surface of the vagina about 8 cm. from the orifice and then returned to the tube. Care was taken that the work was done carefully and expeditiously to avoid contamination.

Agar slopes were inoculated and dilution plates prepared. Blood agar and Endo's culture medium were used in isolation of the colonies.

Colonies were isolated and planted on agar slopes and incubated. Following incubation

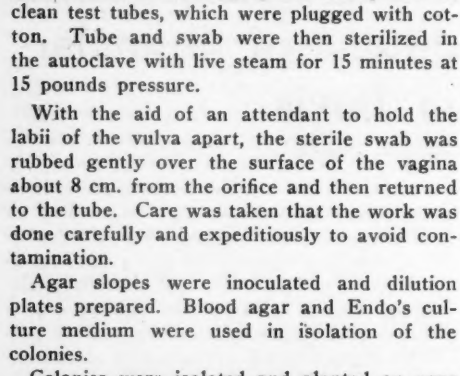


Fig. 2. Microphotograph of cross section cut through a nodule.

smears of the organisms were prepared and stained with Loeffler's blue, hanging drop slides examined, dextrose, lactose and sucrose sugar broths and gelatine tubes inoculated.

The following organisms were isolated from the eight cows examined:

Affected cow No. 1. (a) Streptococci. (b) Staphylocci.

Affected cow No. 2. (a) Streptococci. (b) Staphylocci. (c) Bacillus Coli.

Affected cow No. 3. (a) Streptococci. (b) Staphylocci.

Affected cow No. 4. (a) Streptococci.

Affected cow No. 5. (a) Streptococci. (b) Staphylocci.

Non affected cow No. 1. (a) Streptococci. (b) Staphylocci.

Heifer calf No. 1. (a) Staphylocci. (b) Bacillus Coli.

Heifer calf No. 2. (a) Streptococci. (b) Staphylocci. (c) Bacillus Coli.

Stained smears were prepared from the vaginal wall of non-affected and affected animals, in the following manner.

Sterile cotton swabs were prepared and rubbed gently over the vaginal mucosa. Smears were then made directly on glass slides. Care was exercised that the method of swabbing the vagina was constant in all cases.

Two smears were made at each examination and fixed in heat, one was stained with hemalytoxylin-eosin, to show desquamated epithelial cells, mucous and detritis present. The other was stained with Löefflers methyline blue to better differentiate microorganisms and leucocytes.

Smears were prepared from fine apparently healthy, young, heifer calves in the University herd.

The hemalytoxylin-eosin stain showed the presence of a few single, flat, scaley epithelial cells, and very little mucous and detritis. The results here showed purely physiological desquamation.

On slides stained with Löeffler's blue, cocci and bacilli were present but were not numerous. Only a few leucocytes were found. The above results in hemolytoxylin-eosin and Löeffler's blue stain did not vary to any extent in the animals examined.

Smears were prepared in a like manner from two cows, affected with granular vaginitis in the acute form. These were prepared systematically, every four or five days, for a period of several weeks.

Hemalytoxylin-eosin stain showed clumps of desquamated epithelial cells present. The cells were principally of the flat, scaley type, from the free surface of the epithelium with some thicker, more polyhedral cells, from deeper in the epithelium. Large amounts of mucous, pus and cellular detritis was present at each examination.

On slides stained with Löeffler's blue, many single cocci, diplococci, short chains and many polymorphonuclear leucocytes were present among the desquamated cells and detritis. A

few lymphocytes, and occasionally a large mononuclear leucocyte was found.

The inflammation of the vaginal mucosa of cows, affected with infectious granular vaginitis, flares up and retrogresses at times, from no visible cause. The acute type is always aggravated at estrum, especially if coitis or other form of irritation has occurred. The contents of the slides were variable, from time to time, in that the amount of foreign matter present was in direct ratio to the amount of inflammation present.

In two cows showing old, chronic, regressive manifestation of the disease, with no inflammation of the vaginal mucosa, there was comparatively few desquamated epithelial cells, and little detritis and other foreign matter present.

The microscopic examination of the structural changes were made on 13 animals. The sections of tissue were the clitoris, immediately after slaughter. The animals in question were slaughtered at the Columbus Packing Co., David Davies Packing Co. and the Kosier Packing Co. The tissues were cut in small sections, about ½ inch long and ⅛ inch wide. These were then put in 10% formalin for 24 hours to harden the tissues, they were then washed in running water for 12 hours to remove the formalin and dehydrated in 70%, 80%, 95% and absolute alcohol. The tissues were kept in each strength of alcohol 24 hours, then transferred to the next stronger solution. This was followed by placing the tissues in absolute alcohol and ether, equal parts, for 24 hours. They were then placed in thin parlodion for three days, shaking at intervals, then placed in a thick solution of parlodion for three days. At the end of this time the tissues were thoroughly permeated with parlodion and were ready to mount. This was accomplished by pouring a small amount of the parlodion on a special fiber block, about ¾ inch square, then the tissues were placed on the block in the desired position and covered with thick parlodion. The block and tissue were allowed to set in the air for 2 or 3 minutes then put in a bottle and covered with 80% alcohol until ready to cut sections from it.

To cut sections of the tissue, the fiber block was fastened in a microtome, and sections cut from the tissue, 12 to 15 microns thick, and placed in 80% alcohol until ready to stain them.

The cut sections were then stained in hemalytoxphin-eosin, cleared in carbolzylol, and mounted on slides in Canada balsam, and covered with a thin cover slip. They were then ready for microscopic study.

Mounted sections were prepared from tissues from the vaginal wall of thirteen cows in the manner outlined above. The results of the microscopic examination of the normal vaginal wall, and the pathological condition, as present in granular vaginitis are given in detail in the following pages.

The mucous membrane proper is in folds of strong, glandless loosely woven connective tissue, with weakly developed papillary bodies. The mucous membrane is covered with many layers of flat epithelium cells. The epithelial layer is relative thick in mature cows, and thin in calves. Immediately under the epithelium there is a subepithelium which is rich in cells and takes on the character of reticular tissue and in cattle it contains numerous lymph follicles, blood vessels and nerves.

The muscular coat consists of smooth fibers, which in sections of the vagina, appears as a strong inner circular layer and an outer somewhat thinner, longitudinal layer.

In the web-like, loose adventitia are many vessels and nerve ganglia.

Heifer calf No. 1—Young calf, no lesions.

The sections were taken from the floor of the vagina in the region of the clitoris. Mounted sections show the wall of the vagina as consisting of three coats—mucous, muscular and adventitia.

The epithelial layer of the mucous coat is very thin and consists of a few layers of stratified squamous epithelium. Folds of the mucosa are present, with the elastic connective tissue of the subepithelium following up into them. Numerous lymphocytes are scattered irregularily through the connective tissue. The subepithelial connective tissue is not very extensive and rather dense. It is highly vascular.

The mucosa is succeeded by bundles of circular muscles, which are bound together by a network of connective tissue fibers. The circular muscle tissue is rather extensive. It is succeeded by bundles of longitudinal muscle tissue. The longitudinal muscle is not as extensive as the circular.

The outer or adventitious coat consists of loosely woven, vascular elastic tissue.

Heifer calf No. 2—Young calf, no lesions.

The sections of tissue were taken from the region of the clitoris.

The epithelial layer of the mucosa in this

case is thin, and has numerous shallow folds in it. No papillae are present. The sub-epithelium is not very extensive, is vascular and composed of elastic connective tissue fibers. The epithelial cells rest directly on the sub-epithelium.

The mucosa is succeeded by bundles of circular muscle tissue, which is rather extensive with numerous connective tissue fibers running through it. It is succeeded by longitudinal muscle fibers. It is not as extensive as the circular muscle.

The outer or adventitious layer consists of a rather extensive, loosely woven, vascular, elastic tissue.

Sections from the vagina of the heifer calves were stained with Von Giesen's stain and mounted in Canada balsam.

Mounted sections show a very thin epithelial layer which is folded and ductless. It is non-vascular. Connective tissue fibers follow up into the folds. This is succeeded by a more dense, vascular, elastic tissue with the fibers running in wavy parallel lines and is not very extensive.

External to the elastic coat, there are comparatively numerous bundles of circular muscle fibers, interlaced with connective tissue. External to the circular muscle there are shown bundles of longitudinal muscle fibers. The longitudinal muscle is not as extensive as the circular.

Succeeding the muscular coats a rather loosely constructed, elastic, vascular coat is present.

Cow No. 2—Holstein, non-pregnant, 5 years old, no lesions.

Sections of tissue were taken from the floor of the vagina in the region of the clitoris.

Mounted sections show a relatively thick mucous membrane, which is smooth on the free surface. It is composed of stratified squamous epithelium with numerous papillae on the inner surface. The fibrous tissue of the sub-epithelium runs in wavy parallel lines. A few lymphocytes are scattered along the papillary border and patches of these cells are scattered about through the fibrous tissue. It is highly vascular.

The muscular coats are rather extensive, consisting of an inner circular and outer longitudinal layer.

The adventitious coat is rather loosely constructed connective tissue.

Cow No. 17—Guernsey, pregnant, 4 years old, no lesions.

Sections of tissue were taken from the floor of the vagina in the region of the clitoris.

Mounted sections show a thick epithelial layer which is composed of stratified squamous epithelium and is non-vascular and ductless. Numerous papillae are present on the inner border. Lymphocyti cells are scattered along the border of the epithelium, in the sub-epithelial tissue. The fibrous tissue of the sub-epithelium runs in wavy parallel lines in which are patches of lymphocyte cells. It is highly vascular.

The muscular coats are rather extensive, consisting of an inner circular and outer longitudinal layer.

Cow No. 2—Holstein, pregnant, 5 years old.

A few scattered nodules were present on the vaginal mucosa in the region of the clitoris. There was no hyperaemia or congestion present.

The mounted sections contain small nodules, which are entirely in the subepithelium. The epithelium and papillae are not involved in the nodular mass. The epithelium is thick and indented with numerous papillae.

The nodules are composed of a dense mass of lymphocyte cells in the center, which gradually thin out at the edge. There is considerable infiltration of lymphocytes throughout the subepithelium, proximal to the nodules.

The connective tissue of the subepithelium is loosely woven and highly vascular. Patches of lymphocytes are scattered through its integument.

The muscular and adventitious coats are not involved in the process.

Cow No. 3—Holstein, pregnant, 8 years old.

Nodules were very numerous on the vaginal mucosa and were plainly discernable as greyish red, pin head sized elevations, above the otherwise healthy mucous membrane. They were arranged in rows.

The sections of tissue was taken from the floor of the vagina in the region of the clitoris.

Mounted sections show several nodules, some cut through the center of the nodule and some through the periphery. Nodules cut through the center, show a distinct connective tissue capsule surrounding a mass of lymphocyte cells. Connective tissue proliferation has occurred in the body of the nodules. The immediate adjacent subepithelium is infiltrated with cells. The nodules cut through the peri-

phery snow a more diffuse infiltration of the surrounding tissues. Connective tissue fibers are present among the cell masses. Some vascularity is present in the periphery.

In the deeper situated nodules the epithelium is not disturbed. In those lying close to the papillary border, the papillary spaces are filled with infiltrated lymphocytes. In some cases the epithelial cells are entirely eroded off.

The nodules consist of a proliferated mass of lymphocyte cells, with infiltration of the immediate adjacent tissue. The infiltration occurs laterally from the nodules proper and toward the epithelium.

Cow No. 6—Holstein, non-pregnant, 5 years old.

Numerous nodules were present on the floor of the vagina, appearing as rather large, pale pink, elevations of the vaginal mucosa. Hyperaemia and congestion of the mucosa was present.

The sections of tissue were taken lateral to the clitoris.

Mounted sections show large confluent nodules situated directly under the epithelium.

The mass of the nodules are situated rather deep in the subepithelial layer and are not encapsulated. They consist of dense masses of proliferated lymphocytes with extensive infitration of the surrounding tissues. The epithelium over the nodules is entirely eroded off, the space occupied by infiltrated lymphocyte cells. The periphery of the nodules show some vascularity. There is no connective tissue proliferation in the nodules proper. The vessels of the part are congested.

Cow No. 9—Holstein, non-pregnant, 7 years old.

Numerous pale pink, rather large nodules were present on the floor of the vagina. There were diffusely scattered over the vaginal mucosa and were prominent above its surface. The vaginal mucosa was hyperaemic and congested.

The sections of tissue were taken from the region of the clitoris.

Mounted sections show the nodules as large, dense masses of lymphocytes, with extensive infiltration of the surrounding tissue with cells. The epithelium over the nodules for a considerable space is eroded off and the space filled with infiltrated lymphocyte cells. The patches of lymphocyte cells in the subepithelial tissue show some diffuse proliferation of lyphocyte cells but do not show nodular formation. The nodules are not entirely encapsulated, although considerable proliferation of connective tissue has occurred in their periphery.

The blood vessels of the area are congested.

The deeper lying tissues are not involved in the process.

Cow No. 10—Jersey, pregnant, 4 years old.

Numerous nodules were arranged in lines on the floor of the vagina, appearing as pink elevations of the mucosa, which was slightly hyperaemic and congested.

The section of tissue was taken from the floor of the vagina anterior to the clitoris.

Mounted sections show small nodules situated at the papillary border of the subepithelium. They consist of a mass of lymphocyte cells in the center and gradually thinning out at the periphery.

The adjacent epithelium is thin and the papillae filled with lymphocytes in the subepithelium, lateral to the nodule and toward the epithelium.

They are not encapsulated and there is no proliferation of connective tissue into the nodular mass. The adjacent patches of lymphocytes are moderately filled with proliferated lymphocytes.

The blood vessels show some congestion.

Cow No. 12—Holstein, non-pregnant, 5 years old.

A moderate number of pale pink elevations of the vaginal mucosa was present, with some hyperaemia of the mucous membrane.

The sections of tissue were taken from the floor of the vagina lateral to the clitoris.

Mounted sections show small nodules, some entirely in the subepithelium and some extending into the epithelial layer. They are diffuse nodules, consisting of a mass of cells in the center and gradually thinning out at the periphery. The papillae in the region of the nodules are infiltrated with lymphocytes.

The nodules are not encapsulated nor is there any proliferation of connective tissue into the mass of the nodule.

The condition involves only the papillary edge of the subepithelium. The blood vessels of the subepithelium are congested.

Cow No. 14—Holstein, non-pregnant, 5 years old.

Numerous small pale pink nodules were present on the floor of the vagina. There was no hyperaemia or congestion present.

The sections of tissue were taken from the floor of the vagina in the region of the clitoris.

Mounted sections show several confluent nodules directly under the epithelium. They are composed of dense masses of proliferated lymphocytes, thinning out toward the periphery. The lateral adjacent tissue is somewhat infiltrated with lymphocytes. The epithelial layer which has numerous folds is not involved in the process. No papillae are present.

Cow No. 15—Jersey, Holstein, 12 years old.

A moderate number of small, pale pink nodules were present on the vaginal mucosa. There was no hyperaemia or congestion present.

Mounted sections show rather large well defined encapsulated nodules consisting of a moderately dense center of proliferated lymphocytes. There is slight infiltration of the adjacent tissues with lymphocytes. Bundles of connective tissue fibers are present in the center of the nodules as well as their periphery. Numerous vessels are present in the periphery. The papillae and epithelium are not involved in this case.

Cow No. 16—Holstein, non-pregnant, 8 years old.

Numerous pale pink nodular elevations of the vaginal mucosa were present. There was no hyperaemia.

The sections of tissue were taken from the region of the clitoris.

A series of mounted sections, through several nodules, were prepared in this case. The nodules are shown cut through the periphery, deep in the periphery, and at various places in the nodules proper. Shown at the periphery, the tissues are moderately infiltrated with lymphocytes, appearing as small patches of cells in some cases, with blood vessels and proliferated connective tissue fibers among the cells. Mounted sections, cut deeper into the periphery of the nodules, show a corresponding increase in the number of infiltrated lymphacytes. Mounted sections, through the mass of the nodules proper, show a much more dense mass of cells with a distinct capsule about them and connective tissue fibers running through them. No blood vessels are present. The tissues adjacent to the nodules are moderately filled with infiltrated lymphocytes. The nodules proper are non-vascular. The epithelium over the nodules is thin and the papillae small and do not appear to be involved in the process.

Sections cut through the nodules were stained by Von Giesen's method in order to better differentiate the structure of the nodules and the surrounding tissue. Connective tissue stained yellow, nuclei brown and the cytoplasm, light brown.

In the more acute cases very little or no connective tissue fibers were present in the nodules or their periphery. In the old chronic cases, however, bands of proliferated fibrous tissue were present scattered irregularly throughout the periphery and the body of the nodule, showing the healing process.

The muscular fibers are somewhat lighter color, the nuclei brown.

CONCLUSIONS

Infectious granular vaginitis is a very common disease of cattle, occurring in 90% to 95% of the adult cattle in the United States. It is characterized by nodular protrusions of the vaginal mucosa, accompanied in the acute stage, by hyperaemia and congestion of the part and a mucopurulent discharge.

Bacteriological examinations indicate that the causative agent is a streptococcus, of the viridens type, which predominates as diplococci and short chains, six to nine organisms in the chains.

The acuteness of the conditions is variable, its intensity being increased by any irritation, especially estrum, coitis or external influences, following which it subsides to some extent.

The acute stage is followed by the chronic stage, during which the hyperaemia disappears, the discharge ceases and the nodules gradually become smaller, until in old animals, the vaginal mucosa is normal on ordinary observations.

Microscopic histological examinations of affected cows, indicate that the nodules are proliferations of the lymph follicles as the result of the irritation from the toxins elaborated by the causative organisms. The nodules are situated in the subepithelium and consist of dense masses of proliferated lymphocytes, which infiltrate the contiguous tissues, involving in acute cases, the papillae and epithelium. The mass of the nodules cause a protrusion of the mucosa with elevation and thinning of the epithelium, which is worn off by attrition. Connective tissue proliferates in the nodules in chrnic cases causing dimunition in their size and density. The nodular mass becomes encapsulated, the epithelium regenerates and in time may become smooth and apparently normal on casual observation. The papillae are only affected indirectly.

Papulles or vesicles were not observed at any stage.

The cows in time develop sufficient immunity against the organisms to inhibit their growth, thus preventing the further irritation and consequent nodular formation. This accounts for the low visability of the nodules in aged cows.

Literature

(11 Isepponi, Schw., A 1883 XXIX 1.
(2) Ehrhardt, ibid., 1896 XXXVIII 80.
(3) Ostertag, ibid., 1901 XII 533.
(4) Hecker, B. T. W., 1900 445.
(5) Williams, Diseases of the Genital Organs of Domesticated Animals 1921, 283.
(6) Hess, Bericht ub. d. von d. Gesellsch. schweisz. Tierarzte veraust. Untersuchung betr. d. Knolchenseuche. Bern 1905.
7) Juterbock, Z. F. Tm., 1909. XIII. 354.
(8) Raebiger, D. T. W., 1901. 454.
(9) Thom's, Monh., 1906. XVII. 193.

The Field of Poultry Practice and Its Relation to the Practitioner*

F. R. Beaudette, Newark, New Jersey

Before endeavoring to discuss the field of poultry practice and its relation to the practitioner it might be well to inquire into the size and stability of the poultry industry.

As to its size we have only to consult the 1920 census which shows that in the United States there are 360,000,000 chickens, 3,700,000 turkeys, 3,000,000 geese and 818,000 ducks the value of which and their products is estimated at $1,047,000,000. This census does not take into account the fowls in towns and villages. The value of the 1920 poultry crop is said to exceed the value of all the gold, silver, coal and iron mined that year or a sum equal to the value of the wheat crop. The census shows an increase of 28 percent in the number of fowls in the past twenty years. That the increase in the poultry population is exceeding the increase in the human population is evidenced by the fact that in 1880 there were but two fowls per capita while in 1920 there were nearly four fowls per capita.

Centers of Production

While poultry are quite well distributed over the United States three rather well defined centers of production are recognized. Furthermore, the character of the industry differs somewhat in the various sections. In the New England States the industry is intensive in character; however, the output is not sufficient to supply the demand. On the Pacific coast the industry is likewise intensive in nature and until recently it was necessary to import poultry products. In recent years more attention has been paid to poultry raising on the Pacific seaboard and at present the output is sufficient to supply the local needs and in addition large shipments are made to the east. In the middle west poultry raising is extensive in character and the products in excess of the local demands find their way into eastern cities.

The States Iowa, Illinois, Ohio, Missouri, Kansas, Indiana, Texas, Pennsylvania, Minnesota and New York are said to be the ten leading in numbers of fowls. It will be noted that most of these are located in the middle west where poultry raising is carried on extensively.

Industry Warrants Attention

The above data would seem to indicate that the poultry industry is of sufficient size to warrant the veterinarian's attention. Now let us inquire into the stability of this industry. As stabilizing factors might be mentioned the efficiency of the fowl to produce food as compared to other classes of animals, and the relation of the fowl to the conservation of soil fertility. The fowl's efficiency to produce food (based on 100 pounds of digestible matter) is greater than that of the steer, lamp or sheep but not as great as the hog or dairy cow. As to the conservation of soil fertility the production of poultry leaves more fertility in the soil than does the production of milk or cheese but extracts more fertility than does the production of beef, butter and bacon. It is apparent that the fowl can compete with the other classes of live stock in production and in the conservation of soil fertility. The fact that poultry can be used to utilize the waste of both manufacture and consumption will continue to increase their popularity. That it is a non-competing crop and furnishes a product for home consumption will further insure stability and widespread production.

Having established what appears to be an industry of sufficient size and stability a search for possible limiting factors in production might

*Read at the meeting of the Illinois State Vet. Med. Ass'n. and Veterinary Conference of the University of Illinois, July 10-12, '23.

be made. Such a search reveals the fact that disease is by far the greatest hindrance to the poultry industry. Thus we have the relation of the veterinarian to the poultry husbandman. While the control of infectious diseases will constitute the major portion of poultry practice yet the veterinarian may serve the poultryman in at least two other capacities, viz, caponizing and culling.

The field of poultry practice differs from that of large animals because the low value of the specimen rarely permits individual treatment. In small animal practice the veterinarian is dealing with individuals highly valued by their owners but of low economic value in so far as utility is concerned. The peculiar nature of poultry practice therefore demands that the fee charged be not out of proportion to the actual economic value of the bird. In general flock treatment must be resorted to in the case of poultry, exception being in the case of fowls possessing high individual value or when the treatment is simple, effective and requires little time. That an accurate diagnosis is necessary goes without saying. In some instances a diagnosis is very difficult and in the case of infectious diseases will often require bacteriological examination for differentiation. The veterinarian is not equipped to do bacteriological work and therefore must send specimens elsewhere when the case demands. In these instances the specimens should be alive so that decomposition in transit will not interfere with bacteriological examination. It is imperative that several specimens be sent as one may not be representative of the condition existing in the flock. The writer does not consider the diagnoses made by commercial firms as reliable in all instances and this is particularly true where a diagnosis is attempted by the examination of heart's blood on the slide. In such instances the finding of an organism morphologically similar to a pathogen is by no means evidence of that disease. It is also possible that some commercial firms make diagnoses corresponding to the products manufactured by them. In case of an infectious disease the diagnosis is to be accepted as correct only when the causative organism has been isolated in pure culture and identified by its morphological, cultural and biochemic features. Such a procedure is usually carried out only in state institutions where time permits of an impartial study.

The time has passed when the infectious diseases of fowls alone are to be considered. Investigation has shown that the intoxications, the protozoan diseases, the parasitisms, and the nutritional disturbances are equally as destructive. It is unfortunate that there are many diseases about which very little is known and to this extent the veterinarian is handicapped until further investigation reveals their identity. In general fowls suffer from as many maladies as any of the larger domesticated animals and investigation is gradually raising the plane of poultry practice to a level with that of the larger animals.

When the veterinarian is called to attend one of the larger animals a diagnosis is first made followed by the treatment indicated for that particular condition. In poultry practice the veterinarian must make the diagnosis and then leave instructions to be carried out by the owner in most cases.

CONTAGIOUS INFECTIOUS DISEASES

The most important contagious infectious diseases of known etiology are Cholera, Fowl Typhoid, Tuberculosis and White Diarrhea.

Fowl Typhoid

In outbreaks of cholera and fowl typhoid it must be remembered that highly contagious infectious diseases are being dealt with and immediate steps should be taken to prevent their spread. The owner should be instructed as to the disposal of sick and dead birds and directions are to be given for disinfecting the premises. It is very difficult to differentiate between cholera and fowl typhoid from a post-mortem examination and it may be necessary to send specimens for laboratory examination. This can be done while the owner is carrying out the instructions of the veterinarian. After the diagnosis has been made by the laboratory a vaccine might be employed. However, the owner must be warned that the outcome from their use is questionable.

Tuberculosis

In dealing with an outbreak of tuberculosis the veterinarian is given one of the best opportunities to serve his client. In this instance the veterinarian can make the diagnosis from post-mortem examination and then apply the tuberculin test. This disease furnishes an example of one where individual treatment is profitable and can be applied by the veterinarian. After the injection of the tuberculin readings are made at 24 and 36 hours. If but one observation can be made this should be at the end of 36 hours as many fowls fail to show the reaction at the end of 24 hours, The reacting fowls having been detected instructions are left with the owner for their disposal. If the

premises are thoroughly disinfected after the removal of tuberculous individuals the owner soon observes that losses from tuberculosis do not occur. He is pleased with the veterinarian's services and is prompted to call him on other occasions. Occasionally a tuberculous fowl will fail to react to the test and is left to serve as a menace to the healthy members of the flock. Sometimes such fowls may be detected by a physical examination and discarded but this is not always possible hence a retest is always advisable.

White Diarrhea

The disease white diarrhea in baby chicks should never be treated. The reason for this is obvious when we come to consider the cycle of infection. The adult female carries the infection in her ovaries and some of her eggs are infected with the organism. Should such an egg be used for hatching the resulting chick suffers from white diarrhea soon after extracting itself from the shell and may die. However, in a few cases these chicks recover the initial disease and mature but the infection is always retained in the ovary, hence the cycle of infection. If losses were confined only to the chicks infected through the egg this disease would be of no great economic importance, but the chick thus infected serves as a means of spreading the infection and before long the condition is widespread in the hatch. Investigations by the writer seem to show quite clearly that the organism causing white diarrhea is also partly responsible for low hatchability of fertile eggs.

When the veterinarian is called to treat an outbreak of white diarrhea in baby chicks his attention should be directed to the control of the spread of the disease from the chicks infected through the egg to the healthy chicks. The problem does not end with this as the disease is certain to reappear the following year. To control the disease for all time requires that all hens which carry the infection in their ovaries be eliminated from the breeding flock. Detection of infected fowls is possible only by the application of the agglutination test. To be sure the veterinarian is not equipped with laboratory facilities for making the test but he can collect the samples of blood. To do this it is first necessary to leg band all fowls to be tested. The two dram vials and stoppers should be boiled or heated in an oven to render them sterile. The sample of blood is taken from the wing vein where it crosses the first joint from the body. By placing the fowl on its side and raising the uppermost wing the vein is easily exposed after plucking out a few feathers over the joint. The area may be wiped with a pledget of cotton moistened with a mild disinfectant. A sharp pointed instrument is used to puncture the vein longitudinally and the mouth of the vial held below the wound is soon filled with blood. A small piece of cotton pressed against the wound stops the hemorrhage and the fowl is set free after the leg band number is marked on the vial with a wax pencil. The samples of blood thus obtained are to be kept in a cool place and sent to the laboratory as soon as possible. The reacting fowls may be sent to market and sold without loss to the owner.

The white diarrhea organism as a factor in low hatchability would likewise be eliminated by the application of the test. The value of the test may be estimated by the results obtained in a flock investigated by the writer. In this flock 40 percent of the hens were found to be infected and only 35 percent of the fertile eggs hatched. After the infected fowls were eliminated 97 percent of the fertile eggs hatched and no losses from white diarrhea were sustained in the chicks after hatching.

The test is not being taken advantage of to any great extent except in those sections where campaigns are being carried on by state institutions. The possibilities of the test need advertising and the veterinarian seems to be the logical individual to introduce it in his section. While the cost of having the test made may seem prohibitive the good results obtained justify its application.

Intoxications

Botulism is at present the only specific intoxication recognized in poultry. The malady is sometimes termed limberneck and should not be confused with wry neck which has a variety of causes. The disease is caused by the consumption of food containing the toxin of Clostridium botulinum. When called the veterinarian should endeavor to locate the source of intoxication. In penned birds the feeding of spoiled canned goods is the usual source of intoxication. In range birds the disease is usually not associated with any particular feed but has been noted to occur on hot days following the spring rains. If the outbreak occurs in birds kept in pens the food suspected as containing the toxin should be removed immediately. If the fowls have the run of the farm they should be quartered until the source of danger is removed. All fowls should receive a therapeutic dose of Botulinus

antitoxin type A. This may be supplemented with Epsom salts.

Protozoan Diseases

Coccidiosis and blackhead are the two most important protozoan diseases of the domesticated fowl.

In coccidiosis an intestinal and ocular form of the disease is to be recognized. Very often both forms are present in the same specimen and the ocular form should be differentiated from the so called roup. The part played by the veterinarian will be that of a diagnostician. Treatment is not satisfactory and methods to prevent its spread are about all that can be recommended by the veterinarian. He should understand the life cycle of the parasite to recommend the proper measures to the owner. The encysted stage of the parasite is given off in the feces and should these gain access to the feed and drinking water the disease can be spread to other members of the flock. The resistant stage is capable of remaining viable for a long time in the soil which makes it necessary to change the runs or treat the soil in such a manner as to make it harmless. The feeding and watering troughs should be so constructed and arranged as to prevent contamination with the droppings. As an aid in the diagnosis it might be remembered that the disease is most prevalent in late hatched chicks from two weeks to three months old.

Blackhead is the most common disease of turkeys and occurs particularly in young poults though older fowls are not immune. The disease is widespread and occurs wherever turkey raising is carried on to any great extent. Treatment of this disease is also very unsatisfactory and the veterinarian after having made the diagnosis can only recommend preventive measures. The common fowl is thought to be a carrier of the protozoan and turkeys should therefore not be reared in association with them. A system of rotation may be used whereby four runs are employed at intervals of a week. If medicinal treatment is desired fluid extract of ipecac may be recommended. The dose is ten drops and the drug should be given three times a day for three days then twice a day for three days and finally once a day for three days. Butter milk or sour milk fed in sufficient quantities to increase the acidity of the intestine is thought to lessen the danger of this disease.

LOCAL DISEASES

Of the local diseases of fowls roup is by far the most destructive. Minor affections which might be mentioned are sod disease, bumblefoot and vent gleet.

Roup

While roup is thought by some to be a clinical entity yet the various manifestations seem to indicate that it may have a variety of causes. The possibility of confusing roup with other diseases of the head is very great and in no case is a differential diagnosis more important. At least one type of roup is infectious. It may easily be confused with a condition of the eye due to nutritional disturbances or with an infectious form due to a protozoan. It is therefore evident that a correct diagnosis is all important so that proper recommendations may be made.

After a diagnosis has been made the proper instructions may be left with the owner. Individual treatment is indicated in recent cases but the value of the specimen will not permit treatment by the veterinarian. The part played by predisposing factors is probably greater in this disease than in any other with which the veterinarian will be associated. Malnutrition, overcrowding, insufficient ventilation and dampness are contributing factors to the introduction of this disease.

The cause of sod disease or vesicular dermatitis is not known. It appears in baby chicks particularly and in the summer when they range on unbroken sod. The malady is observed only in eastern Kansas and Nebraska and western Colorado and Wyoming. Prevention lies in confining the chicks to plowed or cultivated land. Dipping the affected feet in kerosene is an effective treatment.

Blumblefoot

Bumblefoot may be defined as an abscess of the sole of the foot. While the condition is infectious it is undoubtedly predisposed by a bruise sustained in jumping from high perches to hard surfaces. Prevention lies in lowering the perches if they are too high or strewing the floor with a deeper layer of litter. Surgical treatment by the veterinarian is indicated in valuable specimens.

The cause of vent gleet has not been established though it is known to be infectious. The contagion is spread by copulation hence the affected birds should be isolated as soon as noticed.

Treatment to be successful requires considerable time and is rarely justified.

PARASITIC DISEASES

Not enough attention has been given toward the eradication of the parasites of fowls. While it is true that they are not directly responsible for large losses yet their presence renders the fowl unthrifty, cuts down production and predisposes the individual to the infectious diseases.

The most important parasites that affect fowls are the round worms, the tape worm, the lice and mites. Before eradication is attempted a thorough understanding of the life cycle of the parasite is essential.

The round worms do not require an intermediate host to transmit them to a new host. The eggs of the parasite are contained in the droppings. These eggs, on account of a double protective wall, are very resistant and are capable of remaining viable for a long period of time. Unlike the round worms of swine the eggs do not require an incubative stage but are infective at any time after being voided by the fowl. This makes eradication more difficult. After treatment has been given the fowls should be removed to new ground very soon to prevent immediate reinfestation. A second treatment is always advisable. The small round worms on account of their location require that medication extend over several days.

The life cycle of tape worms differs from that of round worms in that an intermediate host is necessary for the successful transfer to a new host. In so far as is known at present the intermediate host of but two fowl tape worms are known. In both instances this is the common house fly. Voided droppings containing eggs or segments are not infective by direct transfer which makes eradication of tapeworms less difficult. However, after the fowls have been medicated the droppings should be gathered and destroyed to prevent the secondary host from becoming infected. In view of the fact that inhabitants of the soil to which chickens have access may later prove to be intermediate hosts it is well to practice rotation of the runs.

In the eradication of lice it is to be remembered that these parasites spend most of their time on the host and whatever agent is employed must be applied direct to the fowl. For this purpose sodium fluoride gives good results. It may be applied as the powdered form or used to make a dip. A second treatment is advisable in ten days to insure thorough riddance of the pests. Cleaning of the house is also advisable as a reinfestation might be started by what few lice were detached from the body of the fowl.

In the control of mites particular attention is paid to the hen house as well as the fowl becauses these pests secrete themselves and breed in cracks and crevices where they may be out of the reach of disinfectants carelessly applied. A second treatment is always advisable.

NUTRITIONAL DISEASES

The deficiency diseases of poultry do not differ markedly from those of other animals and man. It is quite probably that the deficiency diseases occur spontaneously more frequently in poultry than in any other class of live stock.

The so called nutritional disease first described in California has been noted to occur most frequently. This condition is due to the lack of the fat soluble A vitamin. The disease appears in pullets toward the close of winter. The vitamin preventing this condition is supplied in green feed, butter, egg yolk and milk. Poultrymen rarely supply this vitamin during the winter months when natural green feed cannot be obtained hence the appearance of the disease towards the close of winter. The lack of this vitamin causes not only nutritional disease but also predisposes fowls to other affections of the eye the most common of which is roup. To prevent this disease it is only necessary to supply fowls with green feed in the nature of sprouted oats during the winter months.

Beri beri of polyneuritis a deficiency disease caused by the lack of the water soluble vitamin B can be produced artificially but never occurs naturally in fowls. The vitamin is contained in the outer covering of grains and the universal practice of feeding grains to poultry prevents the occurrence of this disease in the field. In experimental work a ration deficient in this vitamin produces its effect in a very short time.

The so called leg weakness of chicks is thought to be due to a lack of vitamin D. Certain rays in the sun's light are also thought to be preventive to the appearance of this condition. In experimental chicks reared in the absence of sunlight and on a ration deficient in this vitamin the symptoms of leg weakness develop very soon. If these chicks are then supplied with cod liver oil which contains the necessary vitamin and with exercise in sunlight they soon make a complete and rapid recovery. The past spring a great deal of leg weakness was observed in Kansas. It occurred in the early hatches only. At this time

(Continued on page 79)

Small Animal Section

Blood Pressure and its Application in Canine Practice

J. G. Horning D.V.M. and G. B. Kirkwood D.V.M., Houston, Texas.

IN compiling the data for this article we have condensed the observations of over three years work, and have tried to make it a readable help for the Practitioner instead of a technical treaties on the subject.

Blood pressure is the term used to indicate the pressure exerted by the blood at a given point in the circulatory system at a given moment.

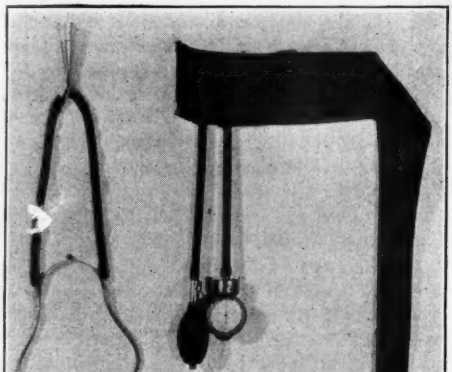
Systolic pressure is attained at the moment of the arrival of the crest of the pulse wave and is the highest pressure attained during one cardiac cycle. Dystolic pressure is the lowest pressure attained during a cardiac cycle. Pulse pressure is the difference between these two pressures, while by mean pressure is understood the average pressure at a given point, however, mean pressure is not the arithmatical mean between the systolic and dystolic pressures, as the pressure may remain at the systolic level for only a moment, falling very quickly to near the dystolic level and remaining near it throughout the greater part of the average cycle.

Blood pressure is usually expressed in mm. (sometimes cm.) of Mercury above or below the atmospheric pressure at the same point.

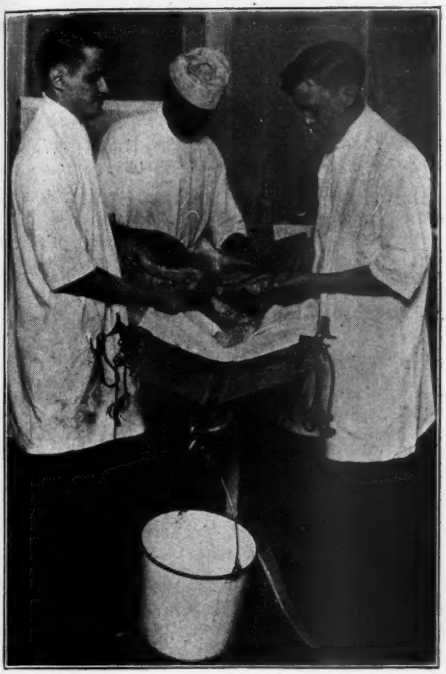
In clinical work it is not the mean pressure but the systolic and dystolic pressure that we measure, however the relation of these to the mean pressure must be considered. The best rule for roughly estimating the mean pressure is to add one-third of the pulse pressure to the dystolic pressure, as the study of the dystolic pressure is in many ways of greater value than is that of the systolic. Normally the dystolic pressure is 70% of the systolic, although in some cases it may run as high as 85%.

In the selection of a practical instrument for use in canine work we were forced to adopt the Aneroid type of instrument as illustrated in Fig. 1. To assure accuracy it is always best to have on hand two instruments same type and make so they can be checked and counter-checked against each other. The instruments used by us in our work are Dr. Rogers Sphygmomanometer, with an infant's cuff, made by the Taylor Instrument Co., Rochester, New York.

We have found the most practical method of determining blood pressure in the dog is by



placing the patient on his side, on table or floor, applying the cuff at the highest point possible, on either the right or left hind leg, especial care being taken in wrapping the cuff so that equal pressure is applied over the area covered by the cuff, as per illustration No. 2. By having an attendant or the owner hold the animal in a recumbent position the cuff is



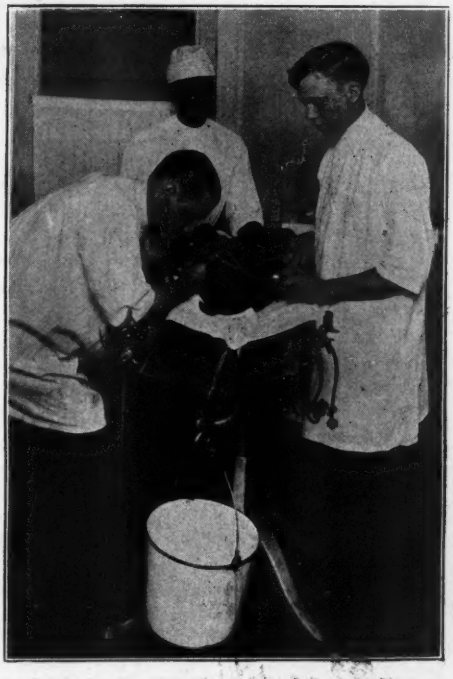
placed as described, the bulb and dial is held by an assistant while the leg is grasped by the one that is making the reading and the Femoral Artery palpated between the stifle and hock with the right hand while the artery is palpated on the foot with the other hand. If stetheoscope is to be used, as in Fig. 3, it is held in place with the right hand just above the hock and the left hand palpating the artery using the same technic as previously stated. The dial is held so that it will be easily readable by the man making the reading. As soon as the pulsation is discerned, by a nod of the head the assistant exerts a steady pressure on the bulb, inflating the cuff with air until the reader is no longer able to get a pulsation and makes his reading of the systolic pressure, when at another nod the assistant releases the air from the cuff, slowly and evenly. As soon as the reader again feels the pulsation he notes the marking over which the hand of the dial appears and makes his dystolic reading. When the entire amount of air is allowed to escape from the cuff, the cuff is removed. This technic carried out several times will give the operators confidence and allow them to make a reading in a very short time. The quickness with which it can be done makes it practical to make a reading on every case examined, which is of great clinical assistance in making a diagnosis.

The following is a table of averages based upon a series of observations to determine the normal blood pressure of dogs.

	Systolic	Dystolic
Dogs ranging from 5-15 lbs.	105	73
Dogs ranging from 15-30 lbs.	110	77
Dogs ranging from 30-40 lbs.	112	78
Dogs ranging from 40-50 lbs.	113	79
Dogs ranging from 50-60 lbs.	120	84
Dogs ranging from 60-70 lbs.	124	86
Dogs ranging from 70-80 lbs.	126	88
Dogs ranging from 80-90 lbs.	130	91
Dogs ranging from 90 lbs. up	136	95

Hypertension

Hypertension is an abnormal rise in blood pressure, we have noted that hypertension exists in pneumonia, distemper, bronchitis, nephritis, meningitis, asthma, toxemia, lead and arsenic poisoning, constipation, tympanitis,



appendicitis, eclampsia, spirochaetosis icterohemorrhagica, and hydrophobia. This is confirmed by many cases examined and treated in our hospital.

Hypotension

Hypotension is an abnormal decrease in blood pressure. It occurs in filiariaosis, ascites, different types of paralysis, hemorrhage, rachitis, beri beri, valvular insufficiency, yellow jaundice, later stages of hookworm infestation, later stage of ptomain poisoning, and in the later stages of all febrile diseases.

The following is another table on blood pressure in a few of the various diseases.

Breed	Weight pounds	Temp.	Pulse	Resp.	Blood pressure Systolic	Dystolic	Diagnosis
Airedale	30	102	66	40	240	165	Hookworms
Spitz	20	101.6	130	50	260	180	Toxemia
Pointer	45	102	85	40	180	150	Hypertension
Setter	50	101	70	80	92	83	Filaria
Spitz	22	103	95	45	150	130	Appendicitis
Boston	18	107	124	120	220	150	Eclampsia
Pointer	55	102	84	45	200	145	Chronic Nephritis
Airedale	48	103	90	42	138-170	96-119	Acute Nephritis
Spitz	30	105	122	60	160 up	120 up	Meningitis
Fox Terrier .	20	101.4	80	70	180	120	Asthma
Pomeranian .	10	98.5	45	30	100	70	Beri Beri
Collie	60	103.6	120	55	105	72	Later stage Distemper
Wolfhound ..	80	104	110	60	240	160	Early stage Distemper
Hound	45	105.2	124	110	280	240	Pneumonia
Pit Bull	50	104	95	60	220	160	Sore mouth
Bull Terrier .	38	101.2	98	100	94	80	Ascites
Fox Terrier ..	28	102	45	30	100	76	Jaundice
Police pup ..	22	102.2	82	45	98	74	Rachitis

Conclusion

Taking into consideration the other symptoms as well as the blood pressure we have found it a valuable aid in our diagnosis.

WATCH DOG DECREASES INSURANCE COST

Your burglary insurance takes a drop if you've got a dog, whether hound or mixed blood or thoroughbred.

One of the big eastern insurance companies today notified its Los Angeles office that the company's merit rating system now applies to residence burglary insurance. Plain, ordinary, common dog is the cause of the change.

A cur or any sort is by this ruling recognized as one of the most reliable of burglar alarms. By allowing a discount from regular rates for residence burglary, theft and larceny insurance when a dog is kept on the premises, the company recognizes him as a valuable safeguard to life and property. This change to merit rating is perhaps the first homage paid by the business world to man's best friend of animal circles.

Now the dog officials will be kept busier than they ever were before. The insurance discount offered is substantial. With lower rates the number of policies will surely jump, and also the dog population. Perhaps many lone mongrels of the street will be taken in and given good homes.—Extract Courtesy of Hal C. Simpson.

Rabies is reported to be causing serious losses among livestock over a wide area of Colorado. The cause is attributed to stray dogs and pedatory animals. Hunters have been engaged to kill off coyotes, bobcats, and dogs running at large, and the commissioners of Huefrano county have been petitioned to order a quarantine of all dogs of the area for not less than 90 days.

Four infected persons are taking the Pasteur treatment. Two of them were bitten by dogs, one by a coyote and one by a bobcat, each of which animals were proved to have been affected with rabies by a laboratory examination.

"Your small animal department is improving." —J. E. E., New York. Thank you.

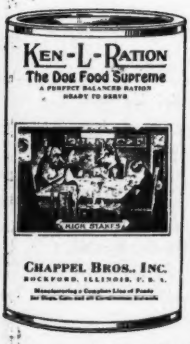
BEAGLES HAVE FRIGHT DISEASE

I would like your opinion on the Diagnosis and Treatment of a pair of Beagle male hounds, I have a client that has two Beagle hounds that get epileptic fits every time they are taken out for a hunt, any where from fifteen te thirty minutes after they start hunting, and at most times they both have fits at the same time, the first signs of the fit approaching is a howling, bristles up and starts running, for a short distance, loses control of the voluntary muscles of locomotion, falls down and has convulsions for few minutes, all the voluntary muscles are rigid, mouth wide open and frothing, this lasts only a few minutes then they get up and after a while will start off hunting, however very much weakened from the condition for an hour or so. These dogs are full brothers and are about twenty months of age, and are cross bred between what is termed a Bench dog and an English beagle. Each one of these dogs had one of these spells last year during the hunting season, but was not affected any more during that seaosn, or until this fall when taken out to hunt, when they are not hunting they seem to be healthy in every respect, except that during the past summer each had a spell of indigestion which I attributed to too heavy feeding and lack of exercise, however they have a nice large lawn for a run at their leisure. They were wormed about six months past, have never had distemper, or any other diseases except the trouble mentioned.—Virginia.

Reply: The above is only one of scores of such cases reported to this office during the last two years. As ofttimes stated some believe this to be an infectious disease allied to distemper, while others including so high an authority as Flynn believe it to be digestive disturbance. During the attack administer an emetic of apomorpin, then a good dose of castor oil and follow up with calmatives:—morphin, luminal (Quitman), bromides, etc. After the attack feed carefully with clean meat, vegetables, and milk, and administer bitter tonics.

LEAD POISONING IN DOGS

A breeder of Dalmatians who is also a painter by trade has recently been having trouble with his dogs. They get thin in flesh, have rather poor appetites, vomit some, and seem to be badly constipated. This man travels over the country with a horse-drawn truck in which he carries his paraphernalia of ropes and ladders and all kinds of paint, and it is his habit to



Ken-L-Ration

and

Hemo-Ration

Solve the Ration Problem of the Small Animal Hospital and Kennel

Veterinarians have been hoping someone would bring out a MEAT FOOD that their ailing dogs would eat. Ailing dogs will eat

Ken-L-Ration

a meat, cereal and cod-liver oil product, when they will not eat anything else.

Hemo-Ration

is a blood, cereal and cod-liver oil product, many prominent veterinarians consider a WONDER-FOOD in treating chorea and rickets.

For bitches in whelp, for anemic subjects, for convalescents, and as the growing ration for puppies it is invaluable.

Packed in Cans. Keeps Indefinitely.
Send for pound sample and Illustrated Booklet.

Chappel Bros., Inc. **Rockford, Illinois**

Veterinarians Recommend

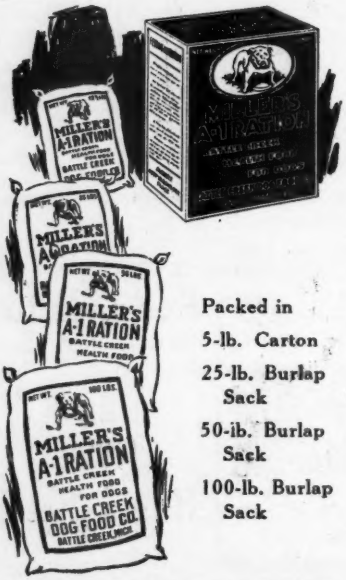
Miller's A-1 Ration

"Battle Creek Health Food for Dogs"

Many of the leading Veterinarians recommend MILLER'S A-1 RATION when dogs are suffering with Debility and Malnutrition and there is no better food to build up good Bone and Muscle. Dogs fed on it regularly are not bothered with eczema or other forms of skin disease due to faulty diet.

FOR PUPPIES

Start your puppies on MILLER'S A-1 RATION as soon as they are old enough to eat solids and watch them grow.



Packed in

5-lb. Carton

25-lb. Burlap Sack

50-lb. Burlap Sack

100-lb. Burlap Sack

DEALERS—WRITE FOR PRICES

FREE TRIAL PACKAGE

Send for FREE trial package and let us quote you prices. Many Veterinarians find MILLER'S A-1 RATION a profitable food to sell.

BATTLE CREEK DOG FOOD COMPANY

Dept. V 272, Battle Creek, Mich.

always have one or two of his breeding dogs run along, sometimes riding and sometimes running along side of the truck. Is it possible that these dogs eat paint or in some way absorb enough poison of some kind (lead, zinc, etc.) to cause the trouble? The owner insists that this is not the case. What is the treatment?—New York.

Reply: The symptoms described are those of saturnism usually manifested by carnivores. In addition there is gingivitis as a rule. The gums are first bluish and then may ulcerate. There is no doubt that these dogs in some way eat lead.

The syndrome of saturnism in dogs consists of the symptoms of gastro-intestinal irritation (vomiting, colic, constipation, diarrhea, etc.) loss of flesh and gingivitis.

The best treatment is potassium iodid and easily digested pultaceous food.

PROTECTIVE VACCINATION OF A RECENTLY BITTEN DOG

On page 1129 of the December issue of VETERINARY MEDICINE I note a query on "The Protective Vaccination of a Recently Bitten Dog." In reply to the query it is stated that dogs which have been bitten "frightfully" by a stray hound which proved to be affected with rabies should receive 5 cc of a dead rabies vaccine.

I do not believe that the rabies vaccine, one injection method has proven effective for the treatment of dogs which were exposed to the disease through bites by dogs affected with the disease. The one injection method is primarily intended for the prophylactic vaccination of animals which have not been exposed to the infection and from the results obtained in this country and also in Japan we are satisfied that the high degree of protection is conferred to the animal against subsequent natural exposure. Furthermore, our experimental work has substantiated that the immunity produced by this method would protect animals even against intraocular injections of street virus. On the other hand, the single injection method has not been recommended in Japan nor are we justified in recommending it in this country for the treatment of animals which have been exposed to the disease.

I am aware of the fact that it has been recommended for such purposes but I am of the belief that we have not sufficient experimental data nor sufficient evidence from its practical use that it is the best product to be used for the treatment of such cases.

We have repeatedly received inquiries whether the one injection method could be administered in one or two doses for the treatment of dogs which have been bitten by rabid animals and we invariably advised the vaccination with the six injection method.

We have on record at least five cases in which the one injection method has been used on animals exposed to the infection with bad results, in spite of the fact that in four of these cases the single injection treatment was administered within 48 hours after the animal was bitten.

While we have in the one injection method a reliable and effective prophylactic product for the prevention of rabies, it should be strictly employed for the purpose it is intended. While I do not doubt but what the single injection method will in many cases prevent rabies in animals already exposed to the infection, nevertheless in the face of evidence already on hand I doubt whether the development of the disease could be prevented in animals in the presence of severe bites, especially when they occur close to the central nervous system. For such cases the more intensive treatment of six injections which contains the unaltered fixed virus is no doubt more efficient and should be given preference by veterinarians over the one injection method.

If you find the above of sufficient interest, kindly publish same, especially so as I am of the firm opinion that veterinarians are prone to accept any innovation of a method, especially when it is simpler in administration and less costly but I believe in case the single vaccination would be generally employed for the treatment of dogs already exposed to the disease it would prove disastrous in many cases.

In substantiation of my contention, I am herewith enclosing an abstract which came to my attention since writing ths letter. From this you will note that the single injection should not be recommended for dogs which have been bitten by rabid animals.

Lederle Antitoxin Laboratories,
A. Eichhorn,
Director, Veterinary Department.

Ptomain Poisoning

By Oscar Schreck, Associate Editor

Ptomains are alkaloidal bodies, the products of the decay of animal tissues, and the action of tainted meat, fish, cream puffs, ice cream, and cheese. Ptomains probably play but a small part in pathological conditions. They are found almost exclusively outside of the living animal, and only become a source of danger when ingested with the food, and in such a manner is quite common in our meat and fish eating domestic animals.

Poisonous Meat

As we know that poisonous meat contains ptomains, and is produced when stale meat is just beginning to decay, being more virulent than others which replace the first decomposition is well under way. This poisoning generally succeeds the eating of various forms of meat and fish which has been the seat of a decomposition in the whole or some one of the constituents of the mass, and generally obtained from garbage cans. Poultry, especially if kept too long, and game birds also prove poisonous at times.

Symptoms

The symptoms vary somewhat, but the following are more constant, after a period of incubation of from one to forty-eight hours: Vomiting, cramps, and diarrhoea—in a word, acute gastro-intestinal irritation. To these may be added dryness of the mouth, difficulty in swallowing, vertigo, indistinctness of vision, dilatation of pupils, while sometimes constipaton substitutes diarrhoea. Thirst, and muscular weakness may also be present. The symptoms may begin at once without incubation, by vomiting and griping pain in the belly. In fatal cases the symptoms of severe diarrhoea are simulated, such as cramps, muscular twitchings, stiffness of the legs, sunken eyes—in a word, the symptoms of collapse. On the other hand, the temperature sometimes rises to 101 to 103 F. (38.3 to 39.4 C.), with a pulse of from 100 to 128.

Poisonous Fish

This is a class of poisoning seen most often in cats, rarely in the dog. In an hour or two, often in much less time, after eating, the animal shows the symptoms of poisoning. Three sets may be described: First, those of gastro-intestinal irritation (vomiting, considerable thirst; great depression) and often an eruption of the skin, (urticaria), and which may terminate fatally within two days, the autopsy revealing inflamed stomach and intestines.

Shell fish and oysters, both raw and cooked may produce the poisonous symptoms, and is especially apt to produce a rash in sus-

ceptible animals. Under urticaria will be found a case coming under my observations in the pupy.

In a second set of symptoms the nervous system seems to bear the brunt of the poison, but these cases are rare in small animals. The case referred to, included symptoms of itching, usually beginning in the eyelids, and manifested by the animal pawing the eyes, this is soon followed by itching extending over the whole body. An eruption, makes its appearance and intensifies the itching. The eruption is often followed by difficult breathing. Sometimes the dyspnea precedes the eruption, the face becomes swollen, eyes closed, the anima! unconscious, and there are convulsive movements of the extremities. In other cases there are convulsions, coma, and death within a short time. In other nervous cases there is coldness of the body, frequent pulse but no fever, the pupils dilated, and death takes place in a couple of hours with symptoms of collapse.

In the third set of cases a symptom like some sort of intoxication is seen (staggering, etc.), followed by paralysis, coma, and death.

Ice Cream

Poisoning by ice cream, is at times the cause of death of the animal. The cheap varieties are colored with anilin dyes, which may not be free from arsenic. And to this, most cases of ice cream poisoning have been traced. Or the highly poisonous alkaloid, ("tryotoxicon"), may be formed in the milk used, the same as in cheese poisoning. A number of cases of poisoning after eating cream puffs have been known, in which doubtless the same ptomain is responsible. A pet dog came under my observation was poisoned by "blanc mange", of which the animal had eaten freely, and which had been made for several days.

Cheese Poisoning

Cheese poisoning owes its poisonous properties probably to tryotoxicon in decayed cheese. Then again in small animals cheese may be injurious to the animal health, because of the presence in many cases of poisonous products of non-pathogenic bacteria of certain species (ptomain).

Symptoms. Usually there is severe gastro-enteritis, with vomiting, purging, and marked nervous depression. It might be well to state, that the symptoms of milk and cheese poisoning are those of gastro-irritation, comparable in various degrees to those described as due to meat poisoning.

Treatment: This is mainly symptomatic—an emetic should be speedily given to get rid of the poisons which are in the stomach. After full vomiting, an active purgative should be given, to remove any of the noxious matters that may not have been rejected. If spasms ensue after evacuation, laudanum, is at times necessary. If inflammation occurs, the usual means of removing it must be employed.

In addition counterirritation by mustard, hypodermic injection of ¼ grain of morphin, repeated if necessary to relieve pain, and strychnin, to prevent collapse may be given. Also powdered charcoal and peroxide of hydrogen have proved worthy. The following intestinal antiseptic is helpful, after the ingestion of ptomains.

℞

Sodii thiosulphatis .....oz. ii
Glycerini .....oz. ii
Aqua Chloroformi .....oz. iv
Aqua Camphor, q. s. .....oz. viii
Misce.

Sigma: Tablespoonful every two hours until free movement of bowels is obtained.

Prophylaxis of Rabies and Vaccination of Dogs

(D. Bartoni, La Clinica Veterinaria, 1923, No. 7 and 8.)

Rabies which since the War has attained an epizootic character in several of the Italian provinces can no longer be controlled by the veterinary police measures which have been employed heretofore. For the purpose of eradicating rabies, therefore, the Italian-Japanese method of vaccination is recommended (it consists of fixed virus which has been treated with phenol). The application of this method of vaccination does not offer any technical difficulties (in Japan more than 30,000 dogs were vaccinated), it is harmless, very effective and comparatively cheap. It is recommended that all dogs in the infected district should be subjected to this form of vaccination. Those, however, which are known to have been bitten by rabid animals must be subjected to a longer and more intensive immunization.

"I am renewing my patronage because there is a change in the spirit of VETERINARY MEDICINE which I take to be due to a change of management. Your frankness is good for the soul."—E. J. W., Kansas.

B-D PRODUCTS

Made for the Profession

CHAMPION
Veterinary Syringe

for one and two hand manipulation

WE MANUFACTURE TWELVE SIZES
FOR THE ADMINISTRATION OF
ALL TYPES OF

TUBERCULINS
BACTERINS
SERUMS
VIRUS

SEND FOR
VETERINARY CATALOGUE

No. 505 / 40L
(Long)

Genuine When Marked B-D

SUPPLIED THROUGH DEALERS

BECTON, DICKINSON & CO.
RUTHERFORD, N. J.

Makers of Genuine Luer Syringes, Yale Quality Needles, B-D ***Thermometers, Ace Bandages, Asepto Syringes, Sphygmomanometers and Spinal Manometers***

Cattle Section

Anaphylaxis from Hyperderma Larvae?

(Courtesy of A. Eichhorn)

I am enclosing some snap shots of a condition simulating anaphylaxis that I find in practice here. The subject a pure bred Holstein cow, four years old, was standing in the barn apparently normal before lunch, after lunch we found her in the condition shown. She was being tested by the intradermal and ophthalmic method. She did not react and has been subsequently tested without a reaction.

The symptoms presented were marked enlargement of the muzzle, eyelids, soft tissues around the eyes and behind the ears, udder, teats, vulva, anus and skin. I should say the skin was hardened and wrinkled instead of enlarged. The dewlap felt almost board like, it was that hard. The teats and vulva were flesh colored or rather a bluish purple. Difficult breathing, drolling of saliva, secretion of tears, and a temperature of 102.2° F. lasting about an hour constituted the symdrome.

Treatment consisted of free circulation of air and lime water internally in pint doses repeated every fifteen minutes. The farmers have thought this a poisoning of some kind and the local treatment has been to fill the animal with cream. They use a gallon or two. I have never had a case with a fatal termination. The old timers have told me of cases that have died, and from their description would judge that the animals died of asphyxiation.

I have had an average of six cases for the three years I have practiced in this locality. The majority of the cases occur in the months of March and April. The earliest being on January 27 of this year and the latest on July 8 of last year.

The cases usually occur on nice warm day in the spring after the cattle have been turned out for some exercise. This fact no doubt being responsible for the belief that the animals had picked up some poisonous weed. The symptoms develop suddenly, are present for an hour or two and then gradually disappear. In one case the symptoms were present for two days, however in this case they were never alarming. I have never had more than one case on a farm at a time. The subject of the pictures is the only case I have noted where the symptoms appeared while the animal was tied in the barn.

Dr. E. A. Bruce of Agassiz, reports the same symptoms in the work he and Dr. Hadwen did with the Hyperderma larvae. His theory in regard to the cases occurring in practice, is that the animals rupture some of the larvae in their backs by rubbing on fences, trees, etc., or in their antics while playing.

As the cases occur in the spring while the warble grub is present in the backs of animals,

he is of the opinion that we are dealing with warble anaphylaxis.

Dr. MacIntosh of Yakima, Wash., reports the same condition occurring in that locality.—J. G. Jervis, Milner, B. C.

CALCAREOUS DEPOSITS ON THE PLACENTA

I have recently removed a retained placenta that was encrusted with calcareous material over the cotyledons. The deposit was thick and removable. The cow a Holstein was healthy in every other way. Was this tuberculosis of the uterus?—Wisconsin.

Reply by J. F. DeVine

As to whether or not the calcareous deposits found on the cotyledons in the case you describe were of tuberculous origin, I do not think anyone could state with positiveness without having made a bacteriological examination. It is, of course, possible, but we might state with reasonable certainty that all calcareous deposits of such a character are not of tuberculous origin because in the human family and with most mamalians there are reports of lime salt deposits having been found in placenta tissue. Those that have been analyzed have been found to consist of calcium carbonate and phosphate and magnesium phosphate, but usually associated with fibrous degeneration. In the human family they are not regarded with clinical significance and are often associated with prolonged gestation, but the condition has been noticed even in abortion.

To the Veterinary Profession Only

TENALINE

A SPECIFIC CANINE TENIACIDE
QUICK — SAFE — EFFECTIVE

Kills and expels Tapeworm 20 minutes after administration.

"SMALL DOSES OF ARECOLIN SOMETIMES FATAL"

Did You Read This Case Report?

CAN YOU AFFORD TO EXPERIMENT?

Price: $1.60 per bottle, cash with order

Manufacturer: WILLOWS FRANCIS BUTLER & THOMPSON, LTD., London, England

Sole Agents America and Canada

R. Vickers, The Plains, Va.

A MILK-FEVER FATALITY

A 7-year old Jersey dropped a full term calf, and six hours later was down with milk fever. The owner drenched her with a solution of sulphate of magnesia. I gave her the air treatment a few hours later, but she grew worse and died the next day. The autopsy showed no impaction of the bowels. What was the cause of death, and what should have been the treatment?—Missouri.

Reply: In this report we sense a quarrel with the owner relative to imprudence of having administered a drench to a cow coming into the unconscious state from milk fever. Any experienced practitioner would know that the drench was probably the cause of death, although the air treatment independent of this harmful treatment, is not 100% efficient. Some cases die in spite of it. The autopsy report should have included the condition of the lungs.

BLOODY MILK

I would appreciate it very much if you would give me the treatment for bloody milk which mostly occurs in one quarter at a time, varying from three or four days at a time to as much as three weeks before it lets up, then occurring in some cases in three or four weeks, to as long as once a year in other cows, and very often in different quarters, with no history of an injury, no inflammation, no curd or any visible sign except that the milk is bloody.—Virginia.

Reply: If these cases are all in one establishment, there is a crying need of disinfecting the premises and everything connected therewith, since the history indicates a constant reinfection. Bloody milk is an infectious disease and should be so handled. Let the affected quarter go dry as soon as possible or dry up the cow entirely and give her a long period of rest to allow the infected focus to heal up, and see to it that in milking such animals the infection is not carried to others. You might also try to have a specimen of the responsible microbe isolated and an autogenous bacterin made. Injecting antiseptics into the udder is practiced by some but is by no means a standard treatment. Careful, gentle milking of the affected quarter, just enough to dry it up, handling of the milk to prevent spreading of the disease to other quarters or to other cows, leaving the cow dry a long while, and the administration of a bacterin is the best management we can offer.

"For the last six months each issue of VETERINARY MEDICINE has been better than the one before. The December issue is the last word in a veterinary journal."—S. S. B., Minnesota.

GLOBE LABORATORIES

Fort Worth, Texas

ANTI-HOG CHOLERA SERA AND OTHER VETERINARY BIOLOGICS OF UNSURPASSED DEPENDABILITY

Branch Offices and Distributors:

Globe Serum Company,	Sioux City, Iowa
Globe Serum Company,	Cedar Rapids, Iowa
Globe Serum Company,	Indianapolis, Indiana
Globe Serum Company,	Peoria, Illinois
Globe Serum Company,	Lincoln, Nebraska
Globe Serum Company,	Denver, Colorado
Globe Serum Company,	El Paso, Texas
Barber & Cochran,	Oklahoma City, Oklahoma
Brashier Brothers,	Jackson, Mississippi
Burris & Mays,	Shreveport, Louisiana
Southeasten Laboratories,	Atlanta, Georgia
Thatcher Serum Company,	Riverside, California

Produced under U. S. Veterinary License 158

"The result was astonishing . . . they began to pick up . . . appetites sharpened . . . today entirely out of danger."

Recently a Massachusetts veterinarian prescribed Fleischmann's Pure Dry Yeast for distemper in dogs.

The grateful owner, Mrs. Maud E. Trayne, Proprietress of The Groton Kennels, Groton, Mass., has written this touching story in a letter to The Fleischmann Company:

"I wish to add my testimonial to the sterling qualities of your Dry Yeast prepared for dogs.

"I have just gone through the worst siege of distemper in my kennels that I have ever experienced in my twenty years of raising dogs. I had thirty-two dogs when the scourge struck me and every one became infected.

"I tried every remedy that I knew of and gave them the best care possible, not seeing my bed for eleven nights. Every day a fresh grave had to be dug for one of my pets.

"I became discouraged and was ready to give up when two of my little ten pound stud dogs passed away. It looked so bad I thought every one of my dogs must surely die.

"Through my veterinary, I was induced to try your Yeast. I started giving it to all of the dogs I had left.

"The result was astonishing. They began to pick up. Their appetites were sharpened, and after one week of feeding the Yeast, every dog with the exception of one was well on the way to recovery and today they are all entirely out of danger and coming along nicely.

"I have twenty-three dogs left and attribute my good fortune to your Yeast."

* * *

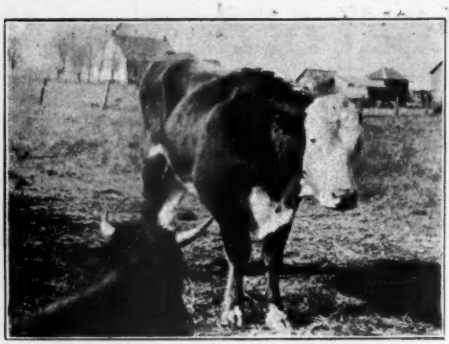
For free booklet and prices to veterinarians and dealers, write to The Fleischmann Company's branch office in any of the following cities: New York, Brooklyn, Chicago, San Francisco, Seattle, Hartford, Conn., Portland, Me., Buffalo, Albany, Philadelphia, Pittsburgh, Baltimore, Boston, Birmingham, Cincinnati, Cleveland, Columbus, O., Dallas, St. Louis, Detroit, St. Paul, Newark, N. J., Toronto, Montreal, Winnipeg, Havana and San Juan.

Fleischmann's Pure Dry Yeast comes in 2½ lb. cans, delivery prepaid. It keeps indefinitely. Full directions with every can.

Copyright, 1924, The Fleischmann Co

ANTI-ANTHRAX SERUM SAVES VALUABLE STEERS

No. 1 is a photograph of a steer affected with localized anthrax the lesion being located in the right shoulder.. This case occurred in a shipment of 90 steers on a river bottom farm that had not been previously pastured but was overflowed in 1915.. In this lot of steers some 35 head died before the disease was gotten



under control.. This particular steer received a dose of anti-anthrax serum and is apparently making a recovery.

No. 2 shows an anthrax local lesion on the left thoracic wall.

Cecil and Steffen have conducted some experiments in which they have demonstrated

that the intratracheal inoculation of monkeys with three doses of pneumococcus vaccine produces an immunity. The supposition of the authors is that an immunity is the result of cellular activities as there is little or no protective anti-bodies demonstrable in the blood of such vaccinated monkeys.

COW TESTING PAYS, RECORDS SHOW

That cow testing pays substantial returns is shown conclusively by records for five years compiled by the federal department of agriculture. In three well-managed associations in Michigan, Ohio, and Pennsylvania the average butterfat production per cow has increased noticeably every year. The first year the average production of butterfat was 237 pounds; second year, 255 pounds, third year, 278; fourth year, 292; and fifth, 305 pounds. At the end of this period the average cow in these herds was yielding 68 more pounds of fat than the average at the beginning of the testing. At 40 cents a pound this increase of fat would have a value of $27.20 per cow, and a herd of 20 cows would bring in $544 more than at the beginning.

High producing cows require less feed for the production of a given quantity of milk or fat than do low production cows.

"Careful study of abortion vaccine after it had been kept in storage for varying lengths of time has shown that the microorganism lives for at least two months in a vaccine prepared with a physiologic salt solution and stored in a refrigerator."—Hadley.

"The eradication of tuberculosis of cattle can, in my opinion, only be accomplished by the cattle breeder himself. That he is able to do it, was proven about thirty years ago and it is a great pity that as yet comparatively few have taken up this task and fulfilled it."—B. Bang.

"Hemorrhagic septicemia, as affecting cattle and sheep, is of considerable importance. In the beginning of an outbreak it is generally considered a secondary disease, but with the increase of virulency it may become a primary disease. When sheep or cattle are affected with hemorrhagic septicemia they usually have been exposed to some unusual condition that has lowered their resistance, such as long shipments, bad storms or lack of feed."—G. S. Weaver.

Waite's

ANTISEPTIC

LOCAL ANAESTHETIC

2% Procaine or 1% Cocaine

In Ampules!

Waite's reaches you in ampules, thoroughly sterilized, crystal clear and ready to use, because it is filtered through a Pasteur Filter—no foreign substances to cause after-pains or soreness.

Its base of Ortho and Para-Meno-Iodo-Phenol stabilizes and enhances its antiseptic and anesthetic qualities.

Waite's is more than a simple Procaine solution.

$1.00 BOX FOR 25c

To introduce Waite's antiseptic Local Anaesthetic we will send you once only a $1.00 box on receipt of your professional card or letterhead and 25c, or if you prefer, a free sample for your professional card or letterhead only.

For Sale by Physicians and Veterinary Supply Houses and Dental Depots.

The Antidolor Mfg. Co.,
77 Main Street,
Springville, Erie County, N. Y., U. S. A.

Check, Sign and Mail this Coupon

The Antidolor Mfg. Co., 77
Springville, N. Y., U. S. A.

☐ Enclosed find my professional card or letterhead and 25c for which send me $1.00 package of Waite's Antiseptic Local Anaesthetic, In Ampules.

☐ Enclosed find my professional card or letterhead for which send me free sample of Waite's Antiseptic Local Anaesthetic, In Ampules.

Name .....

Address .....

MOLDY CORN

No. 1

"I should like to have your opinion relative to mold so common on corn ears in northern Iowa this fall. Is this mold likely poisonous? Cattle to this date haven't been turned into the fields from which the corn has been husked, but will be in a near future and cattle owners are concerned about this mold as there is a lot of this either left on stalks or on the ground. I have, to this date only noted sickness in two herds. One of the baby beeves fed heavily with corn, a few ears were moldy—two developed knuckling at the hind postures and generally were disposed, lack of appetite, dull and temperature slightly elevated. Both recovered with purgatives; dose of salts and potassium permanganate. Second herd—two were affected, both down and will go into clonic spasms, especially if disturbed, no elevation of temperature, elimination normal, animals will appear bright and comfortable between spasms, but at the present time are unable to get upon feet. Animals were given a purgative and potassium iodide—stimulants will later be added if spasms disappear.

"Is this condition botulism poisoning? Is preventive immunization with serum practical in lot conditions. Is corn stalk poisoning and botulism synonymous or is the first condition Hemorrhagic septicemia?—Iowa.

Reply: It is not safe to feed moldy corn in large quantities to cattle and horses, though the same can be fed to hogs. It will depend a little on the nature of the mold found on corn ears. If it is the Fusarium, in all probability it should not be used in large quantities. There may also be some Diplodia. Nothing is known as to whether this fungus is injurious.

I doubt whether botulism occurs in the case of moldy corn. Botulism is caused by a saprophytic organism which produces a powerful toxin. The organism has of course been found in some spoiled fodder on different occasions and sometimes in canned meat, beans, fish, etc. I think this is unlikely to occur. Botulism poisoning is very different than hemorrhagic septicemia or the poisoning from mold and is a question that only a specialist can answer. I do not know enough about it to answer the question, but may say that some so-called cases of forage poisoning are caused by the hemorrhagic septicemia organism.

Entrance to Our Laboratories

The
Goshen Laboratories Inc.
DE VINE
Goshen, New York

The Practitioners, House

FOUNDED BY A PRACTITIONER
MANNED BY PRACTITIONERS
SERVES THE PRACTITIONER

MOLDY CORN

No. 2

In our community, as well as in every community, there is a great deal of sickness among cattle which have had free access to moldy corn and stalk fields. The mortality is very low, at least in my territory. The general line of treatments are physics and stimulants. What I would like to know is will a heavy frost check this malady or not.—Iowa.

Reply: It is not entirely safe to use this moldy corn for cattle. There has been much complaint in Iowa concerning moldy corn this fall. The moldy corn as experiments show may be fed to hogs.

A serious outbreak of anthrax is reported to be creating havoc among the cattle of Ray county, Missouri. Dr. S. S. Morgan, deputy state veterinarian is in charge of the control work, and is assisted by Dr. A. T. Kinsley of Kansas City.

Only 3.7% of the meat consumed by the average American for the last five years was lamb or mutton.

There were over 20,000 snake bite deaths in the human in India in 1922.

BETTER DAIRY HERDS AT LOW COST

Cooperative bull associations are helping hundreds of farmers to improve the production of their dairy cows at a low cost, according to the federal department of agriculture. Last year these associations in the country increased 15 per cent in number, showing that they are making steady progress. In Idaho the number increased from 9 in 1922 to 29 in 1923. Records show that in these associations the bulls have been greatly increasing the production of daughters over their dams. Seventy such daughters whose records have been compiled show an average increase over their dams of 22.22 per cent in milk yield and 25.21 per cent in butterfat production.

Turkey hens usually lay from 15 to 30 eggs annually. Pullets usually produce the largest number of eggs.

According to the statistics of the Missouri Board of Agriculture, there were over 130,000 head of goats in Missouri in 1923 and the mohair production was 135,800 lbs.

There were over six and one-half million turkeys on farms in the United States in 1900. There were less than 3,700,000 in 1920. Coincident with the decrease in number of turkeys there has been an increase in price. In fact, the average price in 1900 was 15c a pound and 32c a pound in 1920 and 1921.

BULL TRIPLETS

From the practice of Dr. J. R. Brown, Janesville, Wis. The calves are all growing and healthy, and more happy than the owner, who quite naturally doesn't like the sex ratio of the new arrivals.

CORN BELT SERUM COMPANY

PROFESSIONAL CONSULTATION
LABORATORY DIAGNOSIS
AND RESEARCH

SERUMS BIOLOGICS INSTRUMENTS

A VETERINARIAN Institution
INCORPORATED 1913

PRODUCTION LABORATORIES,
215 Winstanley Avenue

LABORATORY DIAGNOSIS AND RESEARCH,
736 N. First Street

EAST ST. LOUIS, ILL., U. S. A.

U. S. Veterinary License No. 77

Live Stock Poisoning

By Professor L. H. Pammel, Ames, Iowa.

RATTLE BOX

Dr. Arnold Theiler the able protozoologist of Pretoria, South Africa who has devoted much time to the subject of protozoology and other contagious diseases of South Africa has been delivering a series of interesting lectures to American and Canadian veterinarians. He also lectured on the subject of poisonous plants. In one of these lectures he reported on a very poisonous species of *Crotalaria*, stating as follows: "This is one of the most interesting poisonous plants in South Africa. Horses feeding upon this plant go down with pneumonia and high temperature, as in an infectious disease. It also produces lesions in liver of horses. In cattle it produces lesions of liver, but no pneumonia."

It is interesting how closely allied species and genera are poisonous in other parts of the world which is illustrated in the genus *Crotalaria* or rattle box of which there are only a few species in the United States; only three in eastern North America, and one of these the *Crotalaria sagittalis* occurs in western Iowa and eastern Nebraska, eastward and southward to Texas.

Many of the species of rattlebox occur in Africa, especially South Africa. Dr. Theiler does not seem to have been familiar with the notes on our species reported in VETERINARY MEDICINE and the work done by Dr. M. Stalker nearly forty years ago in 1884, when he wrote as follows: "The disease is very slow in its progress, but proving almost uniformly fatal after a number of weeks or months. There is a general decline of bodily vigor throughout this period, and the only abnormal symptom in many cases is that of marked emaciation and consequent weakness. Horses that have been kept at pasture through the summer, without work, and where the grass grew in greatest abundance, were so thin in flesh that they walked with the greatest difficulty. A critical examination of many of these patients revealed nothing more than the condition resulting from starvation. This was not uniformly the case. In a number of instances there was marked coma or stupor, the animal often falling asleep while eating. In some instances the animal would remain standing for a whole week, sleeping much of the time with head resting against some object. In a few instances the animal lost consciousness, and broke through fences and other obstructions."

There is also another most interesting fact, namely that a goodly number of plants related to this rattle box like the lupine and false indigo (*Baptisia*) have toxic properties, the latter containing *baptisiotoxin*. Sophora, Genista and Cystis are other related genera which are poisonous.

RAPE POISONING

"We have had some strange losses among calves this fall. In two outbreaks the disease occurred in young calves while out on (a) clover (red clover) pasture and (b) in calves out on old pasture, chiefly wire grass. The symptoms have been the same, very rapid breathing, little or no temperature, fast pulse some suddenly die. On post mortem the lesions are those of an acute enteritis. The lung shows many hemorrhages, oedema and acute emphysema. The liver is congested and shows many areas of fatty degeneraton. The only common factor is feeding on pasture after the frosts. It closely resembles 'rape poisoning'. We are seeing quite a little of the latter. I do wish you could send me some literature on rape poisoning. I notice you just mention it in your book and that is all. I managed to make some headway on poisoning due to sweet clover. It is never poisonous unless moldy and then not with all kinds of mold. The mold growing on timothy or red clover did not produce toxic substances.—Ontario.

Reply: There has been some complaint at different times about poisoning from rape. If I recall correctly a correspondent some years ago in the Breeders Gazette mentioned the fact that frosted rape sometimes causes injury. The complaints from rape poisoning are more frequent in Europe than in the United States. It is used much more as a forage plant in Europe than in the United States. The complaints in Europe have usually come from the use of rape seed. "*Brassica Rapa* causes inflammation of the bowels, tympanites, consti-

pation, diarrhoea, some brain irritation, and haemorrhagic enteritis. The disease is more common in Europe where rape seed is used as stock food."

DERMATITIS PRODUCED BY VARIOUS PLANTS

E. Philip Smith[1] discusses plants producing dermatitis in Journal of Botany 58:130-135; 173-176. The author mentions the stinging produced by such plants as Urtica stimulans, U. urentissima. These tropical nettles produce severe continuous pain, tetanus-like symptoms, and even death. The most virulent of the stinging nettles is Laportea crenulata. This plant has minute stinging hairs. This Indian plant is related to our native Laportea canadensis which is common in our woods. The author mentions the lily dermatitis known as the "Lily disease" which attacks the flower pickers in the Scilly Isles where Daffodils and Narcissus are grown in enormous quantities. The rash is an erythema of papular, vescicular or pustular type which may at times become generalized. The author mentions lacquer poisoning caused by Rhus vernicifera which is common in China and Japan. This disease is caused by handling lacquer work. The lacquer causes fever, edema of the skin of the face and limbs, conjuntional catarrh and a papular eruption of the legs and forearms.

Working with certain wood causes dermatitis and the author mentions satin wood which produces an alkaloid chloroxylonin, teak, ebonies, rosewood, box, olivewood are some of the other woods which produce dermatitis. The irritant materials are divided into two classes: (1). Substances which are soluble in water like the nettle, (2), those which are of an oily nature (Rhus type). The question of industrial disease has been brought to the attention of a considerable number of workers.[1]

A second article on Plant dermatitis[2] is published in the same Journal, discusses several genera of the Rhus family which are poisonous. Among these Llithiaeatrees (*Lithraea caustica*) which occur in Chile. The *Rhus juglandifolia* of South America the shade of this tree is said to be poisonous. Renghus tree *(Gluta renghas)* of the Celibes is said to produce noxious exhalations, and is considered very poisonous, but the wood long after it is dried is poisonous. The authors mention a

Veterinary Biological Products

Prepared by

THE GILLILAND LABORATORIES

MARIETTA, PENNA.

TETANUS ANTITOXIN

TUBERCULIN

Subcutaneous
Intradermal
Ophthalmic
In Disc Form
In Liquid Form

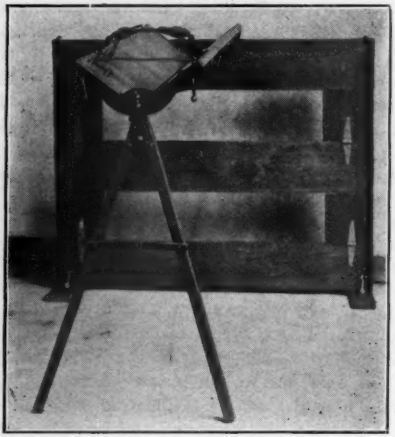
MALLEIN

Subcutaneous
Intra-Palpebral
Ophthalmic
In Disc Form
In Liquid Form

ANTISTREPTOCOCCIC SERUM

AntiRabic Treatment (Pasteur Method)

Betzco Swine Vaccinating and Operating Table



This practical, convenient operating table is ideal for swine vaccination. It is also very useful in canine and feline work. Being adjustable to any of the various fences, gates or panels with which the veterinarian has to contend, it offers maximum convenience. It is adjustable and strong enough to hold any size pig, light or heavy.

Top is 14 inches wide by 40 inches long, and is 30 inches above the ground. Pigs, cats or dogs are held in a convenient and safe position. It is just the right height for rapid work.

The Betzco Swine Vaccination and Operating Table has the advantage of folding up compactly to fit into a durable carrying case which is constructed on the same style as a suit case. Case is furnished in price. This table will save time for you on every job. It gives you a neat clean place in which to work. It will last a lifetime. Every purchaser has been highly pleased.

Use the coupon below. Order one. Try it. You are sure to like it. Please remember that if you are not perfectly satisfied we will not keep one cent of your money.

10VM704. Table and Case complete, $15.00

Frank S. Betz Co., Hammond, Ind.

Gentlemen: Enclosed find $15.00 for which send me one 10VM704 Swine Vaccinating and Operating Table. This order to be under the terms of your guarantee of complete satisfaction or refund of every cent of my money.

Name .....

Address .....

City .....State .....

number of other plants of the family which produce dermatitis, Vanilla pods because of the use of Cashew, sometimes produce dermatitis. Ridley calls attention to the poisonous character of Vanilla Griffithii because it contains latex.

[1]Report of the Departmental Commission on Compensation for Industrial Diseases 1907. 887.5. Robinson Annual Rep. H. H. C. Inspection of Factories 1907. Auld Satinwood Dermatitis London Lancet. 1899, p. 1717. J. Prosser White, Occupational Affections of the Skin.
[2]Journal of Botany 59:308-309.

POISONING BY COCKLE BUR

There have been many accounts of poisoning from cockle bur. Up to this time, however, there has been little good experimental data on the matter. C. Dwight Marsh, G. C. Roe and A. B. Clawson of the U. S. department of agriculture have conducted some experiments with cocklebur. The results of their investigation have just been published by the department.

Circular U. S. Dept. of Agrl. 283 Govt. Printing Office Aug. 1923.

The authors say that: "Reported cases of poisoning have come from most parts of the United States, but more especially from the states of the Mississippi Valley and in the Great Plains region. Especially heavy losses of animals have been reported from parts of Oklahoma, Texas and New Mexico. It has been claimed by some that swine were killed by eating the burs, either because of the mechanical irritation caused by the spines or by the actual poisonous effect of the burs themselves. It has been said that cases are known in which the burs have matted together either in the esophagus or intestines and caused death. The experimental work of the department neither proves nor disproves these statements but makes it probable that, if the burs do cause injury, the loss from this cause is comparatively slight. Of course, it is well known that burs in the wool of sheep interfere very seriously with the value of the wool.

"The experiments show that cases of poisoning occur from eating the young plant just after germination. The statement is sometimes made that the plant is poisonous in the "two leaved stage". As a matter of fact the poisonous period is during the development of the cotyledons in the stage and before the growth of the leaves. The plant is poisonous while the first pair of leaves is partially developed, but after the growth of the leaves apparently it loses its toxic properties. The plant as it grows develops in the mature stages, a bitter taste and is rarely if ever eaten by any animal. The seeds are distinctly

poisonous, but it is not thought that animals often eat enough of them to do them any harm.

"The symptoms of poisoning are depression, nausea accompanied with vomiting, rapid and weak pulse, and a low temperature. Before death there are frequently spasmodic movements, but animals sometimes die very quietly. The symptoms ordinarily appear within 24 hours after the plant is eaten and commonly continue for only a few hours.

"Autopsies show that there is a more or less marked gastroenteritis, that is an inflammation of the stomach and of parts of the alimentary canal. This is accompanied with a thickening of the walls of the inflamed tissues. The liver is congested and there is generally a thickening of the walls of the gall bladder and ducts. The bile is viscid. There is an unusual quantity of serum in the abdominal cavity, and there is frequently a jellylike accumulation about the gall bladder and its ducts.

"The experiments show that swine, cattle and sheep may be poisoned. The effects are especially marked in young pigs up to two months of age, and the reported losses of pigs are much greater than those of other animals. The plant, however, will poison cattle or sheep, and there have been some heavy losses of cattle.

"While there is considerable variation in the quanitity necessary to poison, in general the dose that causes sickness or death is not far from 1½ pounds of the green plant to 100 pounds of animal. This means that a pig weighing 50 pounds would be poisoned by about 12 ounces of the green plant. There seems to be little difference between the dose that causes only sickness and the dose that kills. In the case of pigs most of those poisoned die.

In regard to treatment the authors are not prepared to make absolute recommendations.

"There is, however, a method of treatment which experimentally has had very hopeful results. Mrs. A. Creecy, of Raton, N. Mex., told the senior author that when pigs feeding upon cockle bur were given whole milk none of them were poisoned. This method of prevention was tried experimentally and the animals to which milk had been given failed to be poisoned. Following the inference that it was the fat in the milk which brought about this result, experiments were made with bacon grease, lard, and raw linseed oil. These experiments also were successful.

Dr. B. H. Edgington, former state veterinarian of Ohio is now associate in animal industry at the Ohio Experiment station at Wooster.

Complete Satisfaction

is what you get when you do business with us.

Hundreds of veterinarians who have been giving us their patronage for years will "bear us out" in this statement.

Our serum is of superlative quality and our service is exactly what it should be.

The Great Western Serum Company

820 Exchange Avenue
Stock Yards

CHICAGO, ILLINOIS

Telegraph Address
"Stock Yards Station"
Chicago

Long Distance Phones
Yards 0372
Yards 6400

The patronage of qualified veterinarians is respectfully solicited.

Zootechnic Notes

Preliminary Report to Members of Horse Association of America

By Wayne Dinsmore

Horses and mules—their past, present and future, were the chief consideration of the members of the Horse Association of America at their annual meeting, held at the Blackstone Hotel, Chicago, December 5th.

It was a thoroughly comprehensive program that was offered to the members and their guests of the day; and included consideration of the problems of farm use, city transportation, pleasure horses and breeding.

The morning business session was followed by an afternoon program, that while practical and valuable, was at the same time, pleasurably entertaining.

Prof. J. L. Edmonds of the department of animal husbandry, college of agriculture, University of Illinois, opened the program with a presentation of the horse situation in France and the British Isles. He spent the past summer abroad, visiting the breeding farms of European countries, and his discussion was illustrated by lantern slides showing types and breeds of horses, that are being used on European farms and in European cities. He stated that the falling off of the European horse export trade had had a marked effect on the breeding and raising of horses, and that generally only enough to fill present and individual needs were being bred. Prof. Edmonds feels that while the horse breeding in France did not greatly suffer through the war, that the effects on the industry in Belgium were enormously devastating, both as to the quantity and quality production.

The horse situation as it affects and is affected by the agricultural conditions in the Canadian northwest, was discussed by F. H. Auld, deputy minister of agriculture, Province of Saskatchewan. He reviewed briefly the history of the development of farming in his country, the early influx of persons bent on wheat raising on a tremendous scale, and the almost universal adoption of the large tractor for use on these farms. Following, according to Mr. Auld, came the realization that this system was resulting in tremendous financial loss, and the small tractor was then tried by a great many. During the past few years, it has also been found impracticable to use the smaller tractors, and there is an increasingly general tendency to adopt large horse teams for use on the farms of Saskatchewan. The demand there is for a good type of draft horse.

Prof. A. B. Caine of the department of animal husbandry, Iowa State Agricultural College, talked of the experimental work done in the development of the measurement of horse motive power. He told particularly of the experiments made to determine the working power of a horse day after day in ordinary farm tasks.

Pictures and charts were used to illustrate the talk on "The Pulling Power of the Horse," which was given by Wayne Dinsmore, secretary of the Horse Association. The tests held at the Iowa State Fair, when 21.2 horse power was developed, were shown; and also the tests held recently at the National Horse Show, New York, when 25 horse power was developed. Through the pictures and the charts, clearly explained by Mr. Dinsmore, those present were given an exceptional opportunity to study the Sheffield Farms team, winners at the New York Show, who as champions, developed a tractive pull of 2,450 pounds, equivalent to starting a 16 ton load on granite block pavement. The English room at the Blackstone Hotel was filled to capacity for the afternoon program, and as the pulling tests were shown and explained, the interest of those present rose to applauding enthusiasm.

More than 300 members of the Association and guests attended the evening banquet and program, at which the scheduled speakers were Mr. D. H. Otis of Madison, Wis., chairman of the agricultural commission of the American Bankers' Association; and Col. Robert R. McCormick, co-editor of the Chicago Tribune.

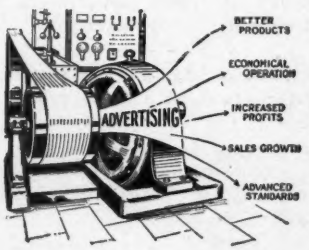
Mr. Otis speaking on "Permanent Prosperity in Agriculture," viewed the problems of agriculture in their economic aspects. He pled for diversified farming, and emphasized the advantages of horse use on the farm.

Col. Robert R. McCormick, who is an enthusiastic horseman and polo player, in a talk that was a well balanced combination of humor, pathos and presentation of facts, spoke of the use of the horse in the past in times of peace and in times of war. As an officer in the United States Army during the border uprisings of 1916, and later with a Field Artillery unit of the First Division, United States Expeditionary Forces, Col. McCormick offered first hand information as to the part that horses had played in these two wars. A leader of the Chicago Riding Club, and a keenly interested observer of the increasing use of horse for pleasure and equestrian sports, he is most optimistic as to the part that the horse is to play in the future.

"World Famous Horses" were shown in moving pictures, and the entire audience of horse lovers offered cheers and applause as the Kentucky Derby was run, and as the New York pulling tests were held. Two hours of informal dancing followed the evening's speaking program.

At the business session, W. H. Yingling of the Terre Haute Hardware Company, and Henry G. Herget of the Pekin Wagon Company, New York, were elected to fill vacancies on the board of directors. William M. Brezette of Indianapolis, Ind., of the Bryden-Neverslip Company; F. H. Sweet of Kansas City, Mo., of the Sweet-Piper Commission Company; and George B. Cavert of the Cavert Wire Company, Ellwood City, Pa., were re-elected to the directorate. The directors, in session, re-elected the following officers: president, Wirth S. Dunham of Wayne, Ill., first vice-president, R. Lawrence Smith of New York City; second-vice-president, F. H. Sweet of Kansas City; treasurer, William M. Brezette of Indianapolis, Ind.; assistant secretary, William E. Murphy of Philadelphia, Wayne Dinsmore of Chicago continues as secretary.

Reference to the case of "sallenders" reported in the November issue, the caption should have read "Percheron" instead of "Shire", and to have "occurred in the practice of Dr. Truman", instead of "belonging to the Truman farm", which establishment disclaims ownership of any Shire stallion affected with that trouble.



The Generator Of Ideas

Advertising intensifies human activity.

It creates within us the desire for better living, better products, better work. It awakens ambition; and ambition develops ideas.

As a writer has expressed it: "The most impressive and complete proof which can be asked of the tremendous power and immense value of advertising is the fact that the business standing of nations corresponds closely to their use of commercial and industrial publicity."

Advertising is education. The publicity given to progress in manufacturing, growing, selling, distribution, etc., is our best insurance against inertia. It is our national stimulant toward improvement.

This is why the United States, a nation hardly 250 years old, is one of the two leading manufacturing and exporting nations of the world, notwithstanding that its wages of labor and standards of living are higher than in any other country.

We offset the competition of cheaper labor in other countries by inventing labor saving machines and systems. We neutralize the longer established prestige of the foreign manufacturer by exporting a product which is either so modern that the foreign producer cannot imitate or which is a better product than he can make.

Let us bring the above truths home to ourselves—inversely. If advertising is a force for progress isn't it to our advantage to use it? Will it not bring us ideas?

Our own advancement is regulated only by two forces—our initiative and the rapidity and extent that our mind broadens with new ideas. These ideas are obtained through text books, editorial pages of our business papers, attendance at conventions, talks with men of our trade, and through reading the advertisements.

In the advertising section of this issue of VETERINARY MEDICINE, will be found many ideas pertaining to modern developments in the veterinary field. Read them. Let your mind assimilate new ideas. The reading of advertisements is a habit that will both clear and extend the routes of thought.

PILFERED FROM THE CHRISTMAS NUMBER OF THE BREEDERS GAZETTE

"The law of supply and demand equalizes everything."—R. P. Stericker.

"The price of hogs and the cost of producing them is out of line at present."—I. J. Martin.

"The American farmers and stockmen are the best producers on earth. They produce an abundance of the raw materials of human existence and comfort."—Walton Peteet.

"More interest was taken in horse exhibits at the fairs last fall than for the past few years. One of the serious drawbacks in replenishing our horse stock will be that many of our mares are past breeding age."—Harry Stamp.

'The impossibility of securing labor at critical moments in the farm cycle, confuses the issue (tractor or horses) for the farmer, and makes him wonder whether the labor risk does not offset the greater expenditure the usages of motors involves."—E. N. Wentworth.

"The awakening of the bankers to the financial soundness of the dairy community over those engaged in other branches of agricultural activities is perhaps one of the greatest recognitions ever accorded the dairy cow."—John A. Bell.

"I had occasion to observe during the past summer that where mixed farming was practiced farmers were doing well, and where wheat was the one money crop the result was failure."—C. E. Buckle.

"Today we find representatives of leading business firms in large cities scouring the country for good, sound geldings weighing from 1,600 to 2,000 pounds. For such specimens they are prepared to pay higher prices than they have ever paid."—John G. Truman.

"Good livestock by the economical conversion of feeds have returned the profits that have enabled stockmen to provide for their families the many things that go to make life worth living, increase the fertility of lands, and help to give recognition to progressive constructive farmers."—W. P. Young.

"Often in the east we are told that the dog has driven the small flock (sheep) off the farms. —I feel sure however that when the importance of maintaining a flock free from internal parasites is better understood by the average farmer we shall again see more flocks on the eastern farms."—Arthur Danks.

"The co-operative spirit which the cow testing associations foster leads to important achievements."—W. W. Marsh.

"Be it resolved: That a national organization known as the Ethical Autioneer's Society be immediately formed for the adoption of a standard code of ethics and rules of procedure for conducting purebred auctions."—Col. N. G. Kraschel.

"It is now well over a hundred years since purebred cattle began to be imported into this country, and we are told that only 3% of the cattle of the country are purebred."—C. H. Minman.

"Were it not for the mule, the cotton crop grown by the one-mule farmer of the south would not be one of the leading industries. Between the mule and his colored brother, there is an understanding seldom found between man and beast."—C. C. Judy.

"In the place of untried and doubtful theories for solving the farmers' difficulties, farm advisers have thrown the balance of their influence toward sane practices and conservtive dealings."—Prof. W. H. Smith.

"The farmer looking for a way out of his troubles, is turning toward the milk check and the merchantable carcass, as a solution of his farming problems. The high cost of transportation is stimulating the eastern farmer to raise beef."—Williard S. Martin.

"Might there not be less discontent were we to close our ears to the clamors of unrest and let heart impulses more fully govern our actions and lives."—A. S. Alexander.

"We have the means and knowledge of either eradicating or controlling every important live stock disease and ailment. Our herds and flocks are entirely free from foot and mouth

disease, pleuro-pneumonia, and other plagues prevalent abroad.—Chief J. R. Mohler.

Did you know that Siberia imports butter to the United States? Well, it's a fact. Three thousand tubs recently arrived at New York from that country and passed the inspection of the department of agriculture.

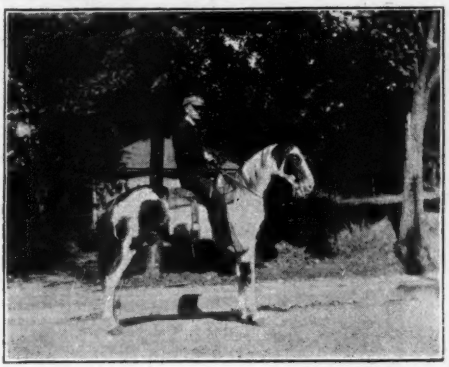
Chicken industry overdone? Hardly. A single shipment of eggs valued at $5,000,000 arrived at the port of New York from China last month. The shipment was the equivalent of 435,000 cases.

HEMIONE

On the fourth line, page 1013 of the November issue (1923) I notice the word "hemione". What is it? An early reply will oblige a veterinarian quite a distance away.—Canal Zone.

Reply: The hemione referred to by the French authors in the article on verminous aneurism in the November (1923) issue is the Equus hemionus, or wild ass of Asia. It has a profile between the horse and the ass but is not a hybrid. The Bible, in the Book of Job, refers to the hemionus of Herod which we presume is what we now know as the half-ass of Asia.

DR. J. R. BROWN, JANESVILLE, WIS.



Dr. Brown is an enthusiastic equestrian and an inspiration to both existing and prospective equestrians of Janesville.

THE ACME OF ANTISEPTIC POTENCY AND REFINEMENT

DISTINGUISHED BECAUSE THEY ARE BETTER ANTISEPTICS

EUCAMPHOLINE:

A highly refined general antiseptic for both internal and external use. The pleasing odor, the perfect, white emulsion in dilution, and its high antiseptic potency assures its continued popularity among practitioners. It is better and in the end cheaper than the common cresylic compounds.

The price is right and the quality guaranteed: 1 Gallon, $3.50; 2 Gallons, $6.50, F. O. B. Chicago; 5 Gallons, $15.00, express prepaid.

GUAIALYPTUS:

The high medicinal value of Guaialyptus has always been recognized where an intestinal or a respiratory antiseptic is needed.

Think of it also as a standard treatment for CANINE, EQUINE and FELINE DISTEMPER, BRONCHITIS, LARYNGITIS, INFLUENZA, and STRANGLES. ROUP, CHOLERA, and OTHER FOWL SCOURGES.

In "FLU", NECROTIC ENTERITIS, and OTHER INTESTINAL AND RESPIRATORY DISORDERS OF SWINE many veterinarians use it exclusively.

The price is right; the dose is small: 1 Gallon, $5.50, F. O. B. Chicago; 2 Gallons, $10.50 express prepaid; 5 Gallons, $25.00, express prepaid.

DRS. CROWE – FISCHER

2805 Indiana Avenue **Chicago, Illinois**

Telephones: Victory 7510 and Victory 8900

Miscellaneous Section

The Milk Goat

By J. F. Shigley, Associate Editor

The raising of milk goats in this country is growing in popularity. Breeders of pedigreed live stock who have confined their attention to horses and cattle are, in many instances, adding goats to their lists of pedigreed animals. Many of these men have found goats a highly profitable addition to their herds without increasing the management personnel. This means additional work for the Veterinarian who in turn must become familiar with the problems of goat management. It is felt that this is ample reason for presenting a brief statement concerning the origin and characteristics of the more important breeds.

The goat has been a source of food and clothing for many years. This applies especially to certain countries where, through necessity, the range and housing space would not permit the maintenance of larger animals. Through the process of selection, considering such factors as color, size, and production, several outstanding breeds have been developed. The Angora, Toggenburg, Saanen, and Nubian constitute the more important breeds, while the Maltese and Schwartzal are of lesser importance.

The Angora goat is a native of Angora, Asia Minor. Angora the principal city, is about two hundred and twenty miles southeast of Constantinople. The climate has wide extremes of heat and cold. The soil is frequently poor and free of vegetation. Forests cover a considerable extent of the area and supplies most of the food for the goats raised here.

The Angora goat is characterized by its white color, horns, large pendant ears, long wavy fleece which may vary in length from six to eighteen inches. The fleece is commercially known as mohair. It has a lustrous or silken quality which enters into the market value of the fleece. While this breed has been of importance in building up the goat industry, it is not especially noted for milk production. Numerous herds are found in this country in the southwest and in those cut-over lands where they prove efficient in clearing these tracts of second growth vegetation. One acre of such land will usually care for from four to six goats.

The Toggenburg goat is a native of the Toggenburg Valley in Switzerland. The goats are medium brown in color, with a white band down each side of the face from the eyes to the mouth. They are usually hornless; and have a slender, lean body. They have a coarse beard, the male showing a much heavier and longer growth of hair on the lower jaw. Their udders have a large capacity, producing up to twelve or more pounds daily. They are easily handled, require a small amount of space, and produce an excellent quality of milk. The males have a less offensive odor than the males of other breeds.

The Saanen goat is a native of the Saanen Valley in Switzerland. This breed is characterized by its white or creamy color; short hair, except along the spine; thighs and flanks. They are usually hornless. The does are especially trim in appearance with slim, long graceful necks and clean heads. While noted for their milk production, the best individuals producing ten to twelve pounds daily, reports apparently indicate that they do not average higher than the Toggenburg.

The Nubian, while a valuable breed, is found only in small numbers in this country. It is a native of Nubia, Upper Egypt, Abyssinia and South Africa. Its important peculiarities consist in the length of the large drooping ears, Roman face, depressed nostrils, and lower jaw extending slightly beyond the upper. The color is brown, black, or tan; hair short; udder large and well placed. The Nubian is very prolific and is one of the best for milk production. Crossing this breed with common does has resulted in a marked increase in milk production. The resulting cross is designated as the Anglo-Nubian, and is better able to withstand the climate of this country.

The Maltese goat is a native of the island of Malta in the Mediterranean Sea. This breed is usually hornless, varying in color from white,

grey, black or spotted. The face is long, clean and free from a beard. This latter fact increases the feminine appearance of the breed.

This breed is practically unknown in America as the sixty-eight goats imported by the United States Department of Agriculture in 1905 developed Malta fever, causing a loss of the entire importation.

The Schwarzal breed is found in the Canton Vallais, Switzerland and in the Rhone Valley. It is sometimes mentioned as the Glacier or Saddle goat. The individuals are large, have wide spreading horns, a large thick beard and a tuft of long hair on the forehead. The front of the body to the shoulders is black, while the balance of the body is white. The legs are slender and clean with black hoof in front and yellow hoofs behind. They are not considered especially valuable as milk goats.

The importations of Angoras greatly exceed that of the other breeds. The Saanen and Toggenburgs have been brought to this country in limited numbers. The flocks of the Nubian breed originated from a very few individuals imported several years ago.

The housing, care, milk, records, goat diseases and other points of interest will be considered in subsequent articles.

Since horses do things largely through habit it is essential, says the bulletin, to establish good habits and to prevent colts from doing things which might develop into bad habits. It is of primary importance here that the colt should never be permitted to have his own way. If he can not do the one thing asked of him, the trainer immediately should make him do something else which he can do. In this way the colt is soon impressed with the fact that man is his master. Once this impression is firmly fixed in the colt's mind he is well on his way toward becoming a good, safe work horse.

The bulletin takes up in separate chapters such subjects as the age to break, gentling the colt, breaking to lead, handling and trimming the colt's feet, breaking to drive, stopping, backing, driving double, driving single, sights and sounds, breaking to ride, correcting bad habits, throwing a horse, harness, and the importance of a good mouth.

Copies of the bulletin may be had free as long as the supply lasts by addressing the department of agriculture, Washington, D. C.

Antiphlogistine

Is a Valuable Aid to Veterinarians in

EQUINE BOVINE CANINE FELINE PRACTICE

MASTITIS
PNEUMONIA
TENDINITIS
SPRAINS
SCRATCHES
ORCHITIS
CAPPED KNEE
INFLATED GLANDS
ABSCESSES
BRUISES
BURNS
BOG SPAVIN
HARNESS GALLS

Yield Promptly to

ANTIPHLOGISTINE

Applied Hot and Thick and Covered With Cotton

Send for Booklet and Sample

The Denver Chemical Mfg. Co.
New York

CANKER OF THE FROG AND CORONETS

The case illustrated by these photographs does not seem to respond to treatment. It started on the front feet and then attacked the hind ones and the coronary bands. I have used Fowler's solution internally and formalin externally.—California.

Reply: This is a case of frog and coronary

canker and is incurable from the usual run of treatments. It would therefore be advisable to try Douglass's intensive arsenic medication. Give two drams of arsenic trioxid in the feed every other day for five days discontinue for five days and repeat two, three, or four times, according to requirements.

Another effective treatment for canker is intensive pressure. Apply oakum rolled into hard rolls and bind them on with bandage wrapped very tight. Change these every third or fourth day. Sometimes under this kind of abuse the pathological process gives up and disappears, and at other times it does not do any good. Whether both of these rather radical procedures would be better than each of them used separately is a matter for future experiment. It is a fact that each one has merit.

CHARCOAL FOR ACUTE INDIGESTION OF HORSES

In a discussion on the use of the stomach tube for acute indigestion at a local association an old practitioner stated that the administration of charcoal was once the standard treatment for this disease among experienced city veterinarians and was thought to be almost specific. Is this true, and what was the basis for such a conclusion?—Nebraska.

Reply: Charcoal was the hobby of the late Roscoe R. Bell for acute indigestion of horses. He read a paper on the subject before the meeting of the A. V. M. A. in 1898, and had many exponents. Charcoal, he claimed, will absorb large volumes of gastric gas and will thus relieve the distress of the engorgement. It was a passing hobby.

INTESTINAL ANTISEPTICS

What is the best intestinal antiseptic a veterinarian can prescribe for general use? Is there really any agent that will sterilize the intestinal tract without doing harm to the patient and if so what is it?—Minnesota.

Reply: The querist imposes an important question—one that might be discussed at considerable length. In short, however, it might be said without fear of much contradiction that the sterilization of such a long bacteria-ridden channel as the alimentary canal is never complete. Bacteria can be washed away, they can be attenuated to a certain degree, and their environment can be made less tenable by administering chemical agents via the stomach. But, in no event should the word "sterilized" be used in this connection because no medication of the alimentary tract even approaches sterilization. The usual rule appertaining to the merits of antiseptic applies: Any agent that is actually bactericidal will seriously irritate or even kill the patient, long before it has killed all the bacteria. The strong germicidal agent that is non-toxic is yet among the unknowns.

It is therefore evident that intestinal sterilization is only relative.

The meetings of veterinarians and poultrymen of Illinois convened to carry out the accredited hatchery project are being widely attended throughout the state and are creating enough interest to indicate that the movement will be a success. State Veterinarian Laird, himself an experienced and practical poultryman, is the guiding influence.

LIBERTY LABORATORIES

Dr. J. H. Copenhaver, Pres. Dr. J. S. Koen, Sec'y.

Ralston, Nebraska

GRADUATE VETERINARIANS

Your kind co-operation has contributed materially to our success and we appreciate it most cordially. Accept our best wishes for a Merry Christmas and a bright and Prosperous New Year.

Liberty Laboratories

Branch Offices

Lincoln, Neb.
St. Joseph, Mo.
Des Moines, Ia.
Bloomington, Ill.
Bushnell, Ill.
Davenport, Ia.

SIMPLICITY SANITARY KENNELS

AFFORD THE VETERINARIAN A MEANS OF EQUIPPING HIS ESTABLISHMENT FOR THE PROPER HOSPITALIZATION OF SMALL ANIMALS AT MINIMUM COST

Canine Tables
Horse Slings
Casting Harness
Horse Operating Tables
Hopples

All Fully Guaranteed

Write for Prices or see your Dealer

VETERINARY SPECIALTY COMPANY

531 South Peoria Street, Chicago, Illinois

J. T. Hernsheim, D. V. M., President

Military Section

New Appointment and Promotion Policy for Medical Department Reserves

By Capt. Geo. H. Koon, Associate Editor

THE War Department has promulgated new regulations governing appointment and promotion in the Medical Sections of the Officers' Reserve Corps. Perusal of these regulations reveals the evident purpose of the Department to give to the veterinary profession of America a far more satisfactory basis for appointment and promotion in the new reserve, and on which is free from the objectionable features of former requirements in these two important features of the reserve organization.

Under these new regulations, promotion in the reserve is given on the impartial and incontrovertible basis of length of commission in the reserve. There are no if's nor and's nor meticulous reference to past records. A man who serves five years in one grade and is of normal development in his profession is eligible for promotion to the next higher grade provided he is physically qualified for commission. Professional examination is waived for promotion from the lowest grade to the highest with one notable exception—the reserve officer who passes from the grade of major to lieutenant-colonel must be tested to determine his fitness for the administrative responsibilities of a higher grade. This is manifestly done to save the Government as well as the individual from the injustice of incurring a responsibility for which the individual is not qualified or gifted. Even for this one examination, however, a distinct advance has been made, since the Surgeon General has evidently differentiated between the character of service and responsibility which the citizen reservist will be called upon to perform. Thus this examination is divided into four broad types:

1 for administrators.
1 for sanitarians.
1 for supply men.
1 for professional group.

This last group includes consultants and chiefs of services and specialists in medicine and allied sciences.

It is manifestly the desire of the Surgeon General of the Army to adapt the examination to the candidate's special field of endeavor and by limiting the examination to one grade to avoid the unnecessary examination of busy professional men. The changes outlined have many advantages to the profession over prior rules but none more acceptable than a clear, simple and fair rule of promotion which will apply equally and justly to all comers.

The appointment features of the new regulations are far superior to the former ones. Two groups are recognized. The first includes original appointees who are given appointment by virtue of their established professional standing. The second includes former service men and men who while not in the military service in the World War were engaged in essential public service analogous to military service and necessary to function of the Government in the conduct of the war. There are many perplexing problems in adjusting the reappointment rank of the several classes in this latter group, but it is clear that the Department has labored seriously to arrive at a just standard. The organization of the reserve is a national responsibility which must be shared equally by the citizen and professional soldier. The Veterinary Corps of the Army in the time of great national emergency will include so great a majority of the active and distinguished members of the veterinary profession of America that the responsibilities of this department becomes that of the veterinary profession of America. The Medical Department of the Army now calls for the cooperation of the body of the civil profession and manifests a laudable spirit in offering appointment and promotion in the reserve

under the most favorable possible terms consistent with the organization of a dependable agency. The defense plans for this country in a major emergency call for 3,000 veterinary officers while the present enrollment in the Reserve Corps is 730. The Army Medical Department now seeks to enroll and classify personnel to fill places in prospective veterinary-military units, so that in a future emergency past errors may be avoided. The Medical Department has placed the reserve on a most favorable footing for the profession. It rests with the profession to come forward and by joining hands to establish a medical reserve system which will afford a protection for the present and guidance for the coming generation.

War Department Circular No. 84, dated November 21, 1923, is quoted below.

"I. **Extension of time limit for appointment of former officers in the Officers' Reserve Corps.** Pending the revision of Special Regulations No. 43, Regulations for the Officer's Reserve Corps, 1921, the following changes therein, relative to the foregoing subject, are published for the information and guidance of all concerned:

The expression "November 11, 1923 (five years after the termination of hostilities)" in the 19th and 20th lines of paragraph 19, and the date "November 11, 1923", in the first and sixth lines of paragraph 84, in the fifth line of paragraph 88, and in the last line of paragraph 89, are changed to read "November 11, 1924." This means the time limit placed upon the appointment of former officers by an examination of their records alone has been extended to November 11, 1924.

Having received and accepted his commission, what should the new reservist then do? First secure the proper uniforms. It is believed that, with propriety, the assumption may be taken that the majority of reservists will not want to invest any more than is absolutely necessary in uniforms. The only time a reservist must wear a uniform is when ordered to active duty. The regulations provide not to exceed 15 days training in one year, but Congress probably never will appropriate enough funds to send every reserve officer to a training camp the same year. As a result the War Department has stated if attendance at a summer training camp would interfere with one's

LATHROP
U.S. VETERINARY LICENSE No 102
ANTI-HOG CHOLERA SERUM

Made in the country—where the environment and surroundings are pure—free from all possible contaminating influences.

An exclusive product which should interest the veterinarian who "looks into and thinks of the future as well as the present."

Correspondence solicited from qualified veterinarians.

Lathrop Serum Co.
Lathrop, Mo.

business, he would be excused. However, in order for each reserve officer to properly perform the functions of his grade in an emergency, he must be trained. Also two weeks spent at a summer training camp will be of incalcuable value to any one, from a physical and mental standpoint and for the opportunity it presents to associate with others of our service. General Pershing in his annual report just published states that it is his desire that every reserve officer attend a training camp at least every three or four years.

Army Regulations governing the wearing of the uniform state:

"Members of the Officers' Reserve Corps will provide themselves with field uniforms with insignia of the branch in which commissioned, for use when ordered to active duty. "Other than clothing, everything needed by such officers will be issued to them when on active duty, except such articles as they may have previously purchased from the War Department."

Field uniform usually consists of shoes and leggins, or boots, spurs, breeches, olive-drab shirt, campaign hat and cord. The regulations state: "Reserve officers and officers of the National Guard in Federal service, will wear the same insignia as officers of the Regular Army." When wearing the olive-drab shirt, without coat, insignia will be worn on the collar as follows: On the left side, 1 inch from the end, the appropriate insignia of rank; on the right side 1 inch from the end, insignia indicating branch, bureau, etc. A uniform coat or blouse is also necessary, and when worn the Sam Browne belt of russet leather and brass trimmings, always well polished, is also worn. Those Reserve officers who have Sam Browne belts of any type approved during the World War are authorized to wear them while serviceable, provided that the bronze finish, if any, on the metal parts is removed and the metal polished.

While Reserve officers will actually need a uniform only when called to active duty, it is believed each such officer should possess an up-to-date uniform and wear same on special occasions. Army Regulations state:

"Reserve officers not members of the Regular Army or National Guard, not on active duty and within the United States or its possessions, may wear the uniform on occasions of military ceremony, at social functions of a military

Captain H. E. Watkins, U. S. A., and Norfolk Star, winners of the Colorado Endurance Test Ride.

character, at informal gatherings of the same character, and when engaged in the military instruction of a cadet corps or similar organization, or when responsible for the military discipline at an educational institution. Such reserve officers may also wear the uniform when attached to an organization for target practice, when visiting a military station for participation in military drills or exercises, or when assembled for the purpose of instruction.

Reserve officers not on active duty, and outside the United States or its possessions will not, except when granted authority, wear the uniform. Such officers, on occasions of military ceremony or other military functions, may, upon reporting to the nearest military attache and having their status accredited, be granted authority to appear in uniform."

ADDITIONAL RESERVE OFFICERS

Majors

Thompson, William
119 Zapata Street, San Antonio, Texas.
Taylor, Oliver A.
539 Sunset Lane, E. Lansing, Michigan.
Goss, Leonard Whittlesey
Ohio State University Veterinary College.
Edwards, Thomas H.
Pasadena, California.
Norden, Carl John
227 No. 9th Street, Lincoln, Nebraska.
Endsley, Wm. Luther
330 E. Dewey Place, San Antonio, Texas.

Captains

Darby, Howard Lee
226 W. Magnolia Ave., San Antonio, Texas.
Hadley, Frederick Brown
2120 Monroe Street, Madison, Wisconsin.
Sewell, Robert Henry
3317 E. 30th Street, Kansas City, Mo.
Washburn, Robert E.
Gloversville, New York
Read, Richard B.
Columbia, Tennessee.
Shultz, Gordon
Grinnell, Iowa.
Barnes, John Burton
143 Katherine Court, San Antonio, Texas.
Beach, Jerry Raymond
University of California, Berkeley, Calif.
Ellis, Perch Lester
Merrill, Iowa.

1st Lieutenants

Keehn, William Gustav
511 New Nelson Bldg., Kansas City, Mo.
Fishback, Howard B.

(Continued on page 79)

LARGE ILLINOIS PRACTICE FOR SALE

Located 90 miles south of Chicago and 75 miles east of Peoria. I have been in continuous practice in this town since 1889—34 years. Clientele thoroughly educated to calling promptly and paying promptly, and appreciates the veterinary profession.

Actual annual receipts from $5,000 to $6,000. Books open to inspection.

Will sell practice and full equipment and will rent hospital; or will include property consisting of modern dwelling and hospital situated on two lots and located within one-half block from main part of town.

This is a general practice, hard to beat, for a capable practitioner who will attend strictly to business. Terms given to responsible parties.

Reasons for selling:—Buried my wife in October, and can no longer carry on.

Address,

Dr. P. C. Ballou, Piper City, Illinois.

We Prepay Freight

We prepay freight on orders of $25.00 and over in the states of

Illinois — Missouri
Iowa — Nebraska
Kansas — Oklahoma

In all other states we allow 5% of the total amount of orders at $25.00 and over.

Liquor Cresolis Comp., U. S. P.

	Gal.
50 gal. drums	$1.48
30 gal. drums	1.57
10 gal. cans	1.80
5 gal. cans	1.84

Circle A Dip

	Gal.
50 gal. drums	$0.78
10 gal. cans	.92
5 gal. cans	.96

All Containers Inclusive

Less 3% for cash with order

Ask for price list

Satisfaction or Money Back

United Chemical Companies

Kansas City, Missouri

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION

By J. F. DeVine, Goshen, N. Y.

The 41st annual meeting of the Illinois State Veterinary Medical Association was held at the Lexington Hotel, Chicago, December 4-5, 1923.

The program was a splendid, well-balanced program throughout, and the spirit of seriousness, duty, responsibility, and friendly cooperation dominated over the whole proceedings. It must be a source of satisfaction to such faithful old "war horses" as Welch, Martin, Mayo, Merillat, Baker, Quitman, and others to have supported President Jaffray in his untiring effort to keep this big association in the front rank. The Illinois meeting of 1923 is an exemplification of what big, honest men can do for their profession when they put their shoulders to the wheel. By reviewing the program it will be seen at once that the men contributing thereto are classed among the most authoritative on their respective subjects. The following is a few of the outstanding revelations of the meeting as they appear to the reporter:

1. For immunization against canine distemper, give 5 cu.cm. of serum and 2 cu.cm. of bacterin for the first dose, then 2 cu.cm. of bacterin every three or four days until four doses are given. The results from this plan were announced as unquestionable.

When dogs are constantly exposed at shows or other places the treatment should be repeated every couple of months.

2. A liberal meat ration is the proper food for pups and grown dogs. It gives them greater resistance against distemper and other diseases, and lessens the severity of the attack. As might be expected there were various opinions expressed as to the treatment. Every veterinarian agrees upon complete rest, quiet, good nursing, and fresh air, with care against chilling. Some expressed a preference for a camphor preparation, and some retain their faith in echinacea, 10 to 30 minims of the fluid extract every three or four hours. Fluidextract of geranium and cod liver oil were mentioned as helpful, and all seemed to agree than intestinal antiseptics were of little value.

3. An important factor in handling milk-fever cases is to guard against moving, dragging or mauling them. Quietness and gentle handling is important, and exercise too soon after recovery from the unconscious state was pronounced harmful.

4. The handling of breeding animals by the average practitioner with reference to fertility was widely discussed and acknowledged to be an important phase of veterinary practice that is being neglected by many who might greatly increase their sphere of usefulness to the live stock industry by a closer study of the sterility problem. It was not contradicted that while the female is most frequently at fault, the male impediments should not be overlooked.

5. Swine diseases, and swine vaccination problems occupied one whole session and were well covered, by papers, addresses and discussions, and as this phase of practice is a significant one to Illinois veterinarians the interest in this part of the program was intense and showed that the corn belt practitioners have a real problem to solve, between the study of swine plagues of that region and the intrusion of the layman. As we of the east see the situation, the cornbelt veterinarian is making a careful study of swine diseases, accumulating a wealth of knowledge of incalculable value to the swine industry, and at the same time is being discouraged by having the work of applying that knowledge taken away from him by those who should know better.

6. The question of state medicine introduced by a paper under the title of "The County Veterinarian" was discussed in a great deal of detail, but without the usual ill-feeling that so often crops out in such papers. The paper reviewed the situation being created by the public employing veterinarians, and while the essayist did not absolutely condemn the movement, it was plain that his observations presage a possible danger to veterinary practice as a private enterprise. The concensus of opinion was that the veterinary practitioner be given the first consideration in apportioning any kind of veterinary work in his community, in order to encourage him to remain in the profession and others to enter it.

Program

"Veterinary Service," by N. S. Mayo, The Abbot Laboratories, Chicago.

"Saddle and Harness Injuries," by Lt. Colonel English, V.C., U. S. A., Fort Sheridan, Illinois.

"American Veterinary Medical Association," by President C. H. Stange, Ames, Iowa.

"The Horse Association of America," by Wayne Dinsmore.

"The Treatment of Canine Distemper," by J. V. Lacroix, Editor North American Veterinarian, Evanston, Illinois.

"Indigestion in the Cow in its Relations to Parturient Paresis and Milk Production," S. L. Stewart, Olathe, Kansas.

"Traumatic Indigestion in the Ox," by T. A. Sigler, Greencastle, Indiana.

"Sterility Work in Cows by the General Practitioner," by Harry Caldwell, Wheaton, Illinois.

"Some Phases of Swine Disease Problems," by H. R. Schwarze, Corn Belt Serum Company, East St. Louis.

"Swine Problems of the Field Investigator," by J. S. Koen, Liberty Laboratories, Bloomington.

"Swine Problems of the Corn Belt Practitioner," R. E. Kluck, Forreston.

"Control Work in Illinois," by State Veterinarian F. A. Laird, Springfield.

"The County Veterinarian," by L. H. Krichel, Alexis.

"Moving Pictures," by W. J. Embree, Western Weighing and Inspection Bureau, Chicago.

The subject of "Accredited Hatcheries" was introduced by State Veterinarian Laird, and was discussed by Robert Graham, professor of animal pathology, University of Illinois.

E. L. Quitman, C. H. Nye, C. C. Hastings, and Robert Graham opened discussions on various subjects that lent much zest to the ceremonies.

A. T. Kinsley of Kansas City; A. E. Cahill, pathologist of the Pitman-Moore Laboratories, Zionville, Indiana; Secretary-Editor, H. Preston Hoskins of the American Veterinary Medical Association, Detroit, Michigan; E. R. Steele, secretary of the Missouri Valley Veterinary Association were among the invited guests of the association who contributed to the interest of this great convention of Illinois veterinarians.

Rabbits are susceptible to swamp fever by artificial inoculation.

The period of incubation of rabies in the horse is from 2½ months to 5 months.

Hog cholera is very prevalent in southern and south-central Illinois.

Black-head or enterohepatitis is a protozoan disease invading the intestine and liver and manifested by diarrhoea, weakness and rapid emaciation. This disease primarily affects turkeys but it may also affect chickens.

Of 300 birds of all ages and from different flocks that were examined in the veterinary science laboratory of Wisconsin, a large percentage were found to be affected with tuberculosis.

LET US TAN YOUR HIDE.

Horse or Cow hide, Calf or other skins **with hair or fur on,** and make them into coats (for men and women), robes, rugs or gloves when so ordered; or we can make your hides into Oak Tanned **Harness or Slaughter Sole or Belt Leather; your calfskins into Shoe Leather.** Colors, Gun Metal, Mahogany, Russet or lighter shade. Calfskins tanned in the lighter shades of shoe leather, also make **elegant stand and table covers;** great for birthday, wedding and holiday gifts.

LET US FIX YOUR WORN FURS

freshen, repair and reshape them if needed. Furs are very light weight, therefore it would **cost but little** to send them in to us by Parcel Post and get **our estimate of cost;** then we will hold them aside awaiting your decision. If you say **"go ahead,"** very well; we will do so and hold them free of storage until you want them. If you say **"no,"** we will return them post-paid.

Our illustrated catalog and style book combined gives a lot of useful information. It tells how to take off and care for hides. About **our safe dyeing process** on cow and horse hides, calf and fur skins. About dressing fine fur skins and making them into neckpieces, muffs and garments. About taxidermy and Head Mounting.

The Crosby Frisian Fur Company,
571 Lyell Ave., Rochester, N. Y.

"Making Animal Tagging Easy"

KETCHUM CLINCHER

The new self-piercing and self-clinching bright **STEEL** tag for Cattle, Sheep and Hogs—that stays in. Three sizes. Numbered and Lettered to suit. Write for descriptions and prices.

KETCHUM MFG. CO., Dept. A, Luzerne, N. Y.

BETTER THAN OTHER FORCEPS

Whittington's

Cross-handled

Pig Forceps

PEERLESS FORCEP COMPANY

519 Argyle Street, Waterloo, Iowa

Price only $3.00

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION

January 16, 1924

Meeting called to order on the second floor of Hotel Ryan by President R. J. Coffeen.

Order of Business

President's Address. Presentation of the Minutes. Secretary's Report. Treasurer's Report. Report of Board of Trustees except on applications for membership, which comes later.

Wednesday Afternoon

1. "A Study of the Methods of Handling Retention of the Foetal Membranes." (Illustrated) By Dr. W. L. Boyd, University Farm, St. Paul, Minnesota.

2. "The Post War Development of the Army Veterinary Service," by Major Robert J. Foster, Veterinary Corps, United States Army, Fort Riley, Kansas.

3. "The Veterinary Officers Reserve Corps." Capt. H. W. Savage, Fort Snelling, Minnesota.

Wednesday Evening

Meeting called to order at Hotel Ryan. Address of Welcome. Hon. Arthur E. Nelson, Mayor of St. Paul. Response for the Association. Dr. Ralph L. West, Waseca, Minnesota.

4. "Circulatory Stimulants with Special Reference to Camphorated Oil," by Professor A. D. Hirshfelder, Professor of Pharmacology, University of Minnesota.

5. "Important Facts to be carefully considered in the Control of Tuberculosis," by Dr. V. A. Moore, Dean, New York State Veterinary College, Cornell University, Ithaca, New York.

Discussion opened by Dr. C. E. Cotton, State Veterinarian, St. Paul, Minn. Dr. W. J. Fretz, Federal Inspector in charge of Tuberculosis Eradication Work, St. Paul, Minn. Dr. M. R. Higbee, Albert Lea, Minnesota.

Thursday Morning

Meeting called to order at the Ryan Hotel by President R. J. Coffeen.

6. "The Work of the Extension Veterinarian," by Dr. W. A. Billings, University Farm, St. Paul, Minnesota.

7. "The Physiology of the Fetus and New Born," by Dr. E. A. Hewitt, University Farm, St. Paul, Minnesota.

8. "Veterinary Education and the American Veterinary Medical Association," by Dr. C. H. Stange, President of the American Veterinary Medical Association and Dean of the Iowa State Veterinary College, Ames, Iowa.

9. "Some New Developments in Veterinary Therapeutics." Dr. M. S. Mayo, Chicago, Illinois.

Thursday Afternoon

10. "The Control of some of the Important Infectious Diseases of Animals," by Dr. A. Eichhorn, Pearl River, New York.

11. "For the Good of the Profession," by Dr. C. A. Nelson, Brainerd, Minnesota.

12. "Disease in Cattle Produced by Feeding Sweet Clover," by Dr. C. P. Fitch, University Farm, St. Paul, Minnesota.

The headquarters of the association will be at the Ryan hotel. The management of this hotel have been very kind in making the necessary arrangements for the meeting. The hotel management requests that reservations for rooms be made as early at possible to assure of accommodations. Rates, single rooms with bath from $2.50 up, double rooms with bath $3.50 up.

SECOND AMERICAN HUMANE CONFERENCE

By Dr. A. H. Baker, Veterinarian Illinois Humane Society, Chicago, Illinois

The Second American Humane Conference was held at the Hotel Astor, New York City, October, 23, 1923 in connection with the forty-seventh annual meeting of the American Humane Association. Three days were devoted to animal protection and three to child protection.

There were over 400 in attendance; many foreign countries were represented by delegates, and others by reports and greeting. The conference was presided over by Dr. W. O. Stillman, president of the American Humane Association. Mr. Battle (representing Governor Alfred E. Smith of New York) and the Honorable John F. Hylan of New York City delivered addresses of welcome which were responded to by Honorable Frank L. Baldwin, vice-president of the American Humane Society.

Delegates were present from England, Scotland, Ireland, Denmark, Hungary, Holland, Switzerland, France, Belgium, Italy, Spain, Greece, India, China, Japan, Canada, Mexico, Panama, Brazil, Argentine, Chili, Peru, Paraguay, Columbia, Poland, and Norway, many of whom read brief reports.

The Program

1. Report of the committee of the American Humane Association on slaughter house reform by Dr. Francis H. Rowley, chairman, president of the Massachusetts S.P.C.A.

2. "Slaughter House Reform in Connecticut" by Dr. Charles L. Cotton, Connecticut Humane Society.

3. "Slaughter Methods Today from the Packers' Viewpoint," by Mr. Charles E. Herrick, president of the American Society of Meat Packers, Chicago, Illinois.

4. Report of the prizes of $10,000 offered by the A.S.P.C.A. and $5,000 offered by the American Institute of Meat Packers for the best device for stunning animals for slaughtering.

4. The evening of the 22nd was given over to the Martin humane centenary celebration of the enactment of the first law for the protection of animals.

This meeting is called by The Second American World Humane Conference to show international appreciation of the great work of Mr. Richard Martin, of Galway, Ireland, through whose efforts the passage of the first law for the legal protection of animals from cruelty and abuse was secured. It was the magna charta of the animal world and did as much for man as for beast. It introduced a new ideal for man's observance, which was the recognition of the rights of animals and the duty of man to protect the weak and suffering. This law was enacted by the British Parliament in 1822. The first society organized to enforce such laws was instituted in London, England, in 1824. Hundreds of such societies now exist and are found all over the world, while humane laws find place on the statute books of all civilized nations. The principle for which Martin fought and conquered is now accepted everywhere.

5. "The Work of Broome and Martin and What he has brought to England and the World" by Captain Ely Fairholme, chief secretary of the Royal S.P.C.A. of London.

6. "The Life and Character of Richard Martin" by Mr. Henry J. Martin, of Toronto, his great-grand son.

7. "The World's Debt to Richard Martin, by Dr. Wm. O. Stillman.

8. "The Power of an Ideal" by Rev. Charles Scanlon, L.L.D.

9. Horse parades, trapping fur-bearing animals, humane education in the public schools, reports from foreign countries, stock transportation reform, stock losses in transit, were all discussed.

The theme of the Second World Humane Conference was "Practical Humaneness."

Secretary Bux announces that the regular annual meeting of the Arkansas State Veterinary Medical Association has been set for June 21, 1924, at Little Rock.

THE FOSTORIA SERUM CO.

FOSTORIA, OHIO, U. S. A.

Manufacturers of

Anti-Hog Cholera Serum

Hog Cholera Virus

Under U. S. Veterinary License No. 131

Think THIS Over

—No Extravagent Claims
—No Boastful Assertions
—No Doubtful Statements

Yet

Our Sales of

Grain Belt Serum

For the year of 1923 exceeded any previous year of our existence.

There must be a Reason

Sales Limited to the Graduate.

Grain Belt Supply Company

Home Office and Laboratory
4901 S. 33rd St. Omaha, Neb.

Branch Offices
Mason City, Iowa Sioux City, Iowa

The Virginia state association will hold its 1924 annual January 10-11.

The Oklahoma State Veterinay Medical Association will hold its winter meeting at the Huckins Hotel, Oklahoma City, January 16, 17, 1924. L. B. Barber, Secretary.

The veterinary conference of the University of Pennsylvania will be held at the veterinary school in Philadelphia, January 8-9, 1924.

KANSAS STATE VETERINARY MEDICAL ASSOCIATION

Program

February 6, 1924

Kansas Veterinary Medical Association called to order by Dr. S. L. Stewart, Pres. Kansas Veterinary Medical Association.

Address of welcome, Dr. R. R. Dykstra, Dean of Veterinary Division, K. S. A. C.

Response on behalf of Veterinary Medical Association, Dr. B. W. Conrad, Secy. Kansas Board of Veterinary Medical Association.

Address by President S. L. Stewart.

Recent Developments in the Handling and Control of Animal Diseases, Dr. E. J. Frick, Assoc. Prof. of Comparative Medicine, K. S. A. C. General Discussion.

The American Veterinary Medical Association, Dr. H. Preston Hoskins, Secy. American Veterinary Medical Association.

General Assembly.

Hemorrhagic Septicemia in Domesticated Animals, Dr. A. T. Kinsley, ex-President American Veterinary Medical Association.

Demonstration of Anaesthetics and Performance of Caesarian Section on a Sow, K. S. A. C. Clinic Staff.

Business Meeting of Kansas Veterinary Medical Association.

February 7, 1924

Lecture and Demonstration on the Anatomy of Reproductive Organs of Domesticated Animals, Doctors Burt and McLeod, Dept. of Anatomy, K. S. A. C.

The Present Status of Abortion Disease in Cattle, Its Spread, Influence of Male, and Control. Dr. W. E. Cotton, Asso. Supt. B. A. I. Experiment Station.

Complications of Abortion Disease and Their Treatment, Dr. W. L. Boyd, University of Minn.

General Assembly.

Abortion from the Practitioner's Standpoint, Dr. G. H. Mydland, Horton, Kans.

Abortions Other than Infectious, and Their Causes, Dr. W. M. McLeod, Assoc. Prof. Dept. of Anatomy, K. S. A. C.

Lecture and Demonstration: Sterility and the Physical Examination of the Genitals of Domesticated Animals, Dr. W. L. Boyd, University of Minnesota.

Diagnosis of Pregnancy, Dr. E. J. Frick, Assoc. Prof. of Comparative Medicine, K. S. A. C.

Vaccines and their Preparation, Used to Control Abortion Disease, Dr. H. F. Lienhardt, Prof. of Pathology, K. S. A. C.

Practical Value of Seriological and Other Tests in Abortion Disease Control, Dr. C. H. Kitselman, Asst. Prof. of Veterinary Research, K. S. A. C.

Farm and Home Week Banquet. Special tables for veterinarians and a veterinary speaker.

February 8, 1924

Veterinary Fees, Dr. W. R. Barnard, Belleville, Kans. Discussion by Dr. J. F. Hemphill, Clay Center, Kans.; Dr. H. C. Gale, Clyde, Kans.; Dr. S. L. Stewart, Olathe, Kans., and others.

Veterinary Organization, Dr. Robert Graham, Head Dept. of Animal Pathology, University of Illinois.

Veterinary Business Methods, Dr. E. F. Kubin, McPherson, Kans., member Kansas Board of Veterinary Medical Examiners.

Differential Diagnosis of Poultry Diseases and Demonstration of a Post Mortem Examination, Dr. Wm. R. Hinshaw, in charge of Poultry Diseases, K. S. A. C.

The San Joaquin Valley Veterinary Medical Association held its regular meeting at the Hanford Veterinary Hospital, Hanford, December 5.

The South Carolina Association of Veterinarians will hold its annual business meeting at the Jefferson Hotel, Columbia, on January 28. "It will be an evening meeting with a banquet, a business session, election of officers, and a discussion of current topics," Secretary Blackstock announces.

The Pennsylvania Veterinary Medical Association will hold a one-day session, January 22, at Harrisburg, in conjunction with the Allied Agricultural Association Conference. Secretary Church announces a program that will appeal to the members of the association and all who are interested in the development of the livestock industry.

PURITY
Purity
BIOLOGICAL
First
LABORATORIES

TRADE MARK
REG. U. S. PAT. OFF.

WHY WORRY

about the

PROBABILITY OF HAVING TO RE-VACCINATE?

Use a Serum That Is Worthy of Your Confidence

The "Old Reliable" Purity Anti-Hog Cholera Serum Always "Immunizes"

Made by Experienced Veterinarians

PURITY BIOLOGICAL LABORATORIES

Sioux City, Iowa

Happy New Year!

It is our most earnest wish that 1924 may bring to you health, happiness, prosperity and unbounded success.

We hold ourselves in readiness to co-operate and assist you to make your success everlasting and offer you every facility at our command.

And you will succeed in your profession by achievement, because of thoroughly satisfactory results. Zell-Straub, ever zealous of your needs to succeed presents a most dependable array of bacterins, pharmaceuticals and medicinal specialties for you.

You should try Z-S products.

ZELL-STRAUB

LABORATORIES

5514-20 Norwood Park Ave.

Chicago, Ill.

Originators of Flavisol

The annual meeting of the Colorado Veterinary Medical Association will be held in the rooms of the Gentlemen's Riding and Driving Club, Denver, January 23-24, 1924. I. E. Newsom, secretary.

The Indiana annual meeting will be held at Indianapolis January 9-10, 1924. Secretary Boyd is getting up a good program with the assistance of the program committee, and is inviting everybody to attend.

The combined program of the twentieth annual meeting of the Kansas Veterinary Medical Association and the third annual conference of Kansas veterinarians will be held at Manhattan, Kansas, in the veterinary buildings of the Kansas State Agricultural College, February 6, 7, 8, 1924. Dr. S. L. Stewart, Pres., Olathe. Dr. I. J. Pierson, Sec'y., Lawrence.

As previously announced the Ohio state meeting will be held at Columbus, January 9, 10, 11. The literary section will be held at the Deshler Hotel and the clinics at the university.

THE IOWA STATE ANNUAL

The Iowa State association will holds its 1924 convention January 15-19. It will be a four-day session: Two days at Des Moines and two at Ames. The business sessions and the literary program will be held in the Fort Des Moines Hotel, Des Moines and the clinics and other demonstrations at the veterinary department of the Iowa State College of Agriculture, at Ames.

Inasmuch as Iowa will this year entertain the national association, the president of which is a member of the state association, this meeting promises to be one of the outstanding conventions of the season. Although Iowa is already distinguished for its large and interesting meetings, the fact that it has been honored with both the annual meeting and the presidency of the American Veterinary Medical Association makes the year's work of the state association one of exceptional importance.

In addition, the members and visitors are promised a clinic at Ames of unusual significance both in regards to new features and the variety of clinical subjects.

The joint meeting of the Wisconsin State association and the university conference will be held at Madison, January 29-31. Specialists to discuss the various problems confronting the profession of the state and the clinic at Dr. West's hospital are among the features announced.

The Missouri Valley association will hold its semi-annual meeting at Kansas City, February 19-21. The details of the program have not been announced, but members are being assured by President Statter and Secretary Steel, that interest in the association is running higher than ever and that the Kansas City meeting will be in keeping with the old traditions of this large association.

SHORT COURSES FOR VETERINARIANS, UNIVERSITY OF WISCONSIN

The announcement is made that the second annual Short Course for Veterinarians will be held at the University of Wisconsin, January 29, 30, 31 and February 1, 1924. This event is under the joint auspices of the Wisconsin veterinary medical association and the state university. The idea that has been kept uppermost in mind in planning the program is to bring recent discoveries and proved methods in veterinary medicine and surgery to the attention of those who will attend. To accomplish this, arrangements have been perfected for special laboratory exercises and experiments that will be conducted by the veterinarians themselves, thus giving them an opportunity to secure first-hand information.

In compliance with a resolution passed at the semi-annual meeting of the association held during the summer, the last day will be devoted to a clinic. This is to be held at the commodious and well-appointed hospital of which Dr. J. P. West is the proprietor.

PRACTITIONERS' WEEK
University of California
January 7-10, 1924
University Farms, Davis, Calif.

The course is open to all qualified veterinarians. No fees will be charged. The expense of the course will be paid by the College of Agriculture of the University of California.

BOARD—Board may be secured at the California Inn on the Campus. There are also several restaurants and places to board in the city of Davis.

ROOMS—The dormitories of the University Farm are expected to supply a sufficient number of rooms. While hotel accommodations in the city of Davis are scarce, there are a number of private homes within a short distance of the school where rooms may be secured at reasonable rates.

Important

Veterinarians should communicate with Dr. F. M. Hayes, University Farm, Davis, for room reservations as early as possible.

TRY IT! *IT WORKS!*

Black Tongue Treatment

SATISFACTION GUARANTEED

Would you try something that has been curing over 90% of the cases treated? If so, we offer you a chance to try our Black Tongue treatment.

In offering this treatment we wish to state that where the disease is of 5 to 7 days duration the treatment is doubtful although some cases have recovered. Cases of only 3 or 4 days duration or less, have responded to this treatment almost without exception.

It is our desire to market this treatment through the Veterinary Profession only. We offer it at Five Dollars ($5.00), less 40% to veterinarians.

If you will try it on a fair case and are not satisfied with the results, we will refund your money. You have everything to gain and nothing to lose if not satisfied.

Could we do more for you?

4V Black Tongue Co.,
O. M. Norton, V. M. D.,
Manager
109 Main St., Greenville, Miss

Distributed by
Wilmer Veterinary Supply Co., Memphis, Tenn.
Purity Serum Co., Athens, Ga.
Dr. Wm. M. Fancher, Roxboro, N. C.
Fraser Veterinary Supply Co., Richmond, Va.
Dr. L. E. Miller, Corpus Christi, Texas.

IT WORKS! *TRY IT!*

CHICKEN POX VACCINE

Five Cents a Dose

Fuller Biological Laboratory

104 Maple Avenue,
Ithaca, *New York*

CLASSIFIED ADVERTISEMENTS

For Sale, Wanted, etc., $2.00 for 25 words or less; additional words, 8 cents. 25 cents extra when replies are sent care of the journal.

FOR SALE—WANTED

FER-SUL AND FER-SUL-INE—make a good side line for salesman visiting veterinarians. Address, The Westmoreland Chemical & Color Company, 22nd & Westmoreland Streets, Philadelphia.

VETERINARY PRACTICES, POSITIONS, ETC., furnished and handled for sale in 48 states. Physicians, dentists and nurses furnished and located. Drug stores for sale and drug positions in all states. F. V. Kniest, Peters Trust Bldg., Omaha, Neb. Established 1904.

I HAVE A FEW PAIR OF REGISTERED SILver black foxes for sale. This is the center of the black fox industry of the United States. Dr. F. U. Steele, Muskegon, Mich.

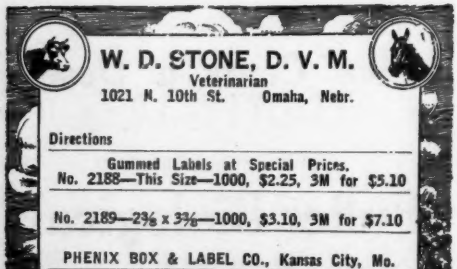
FOR SALE. In Eastern Oregon a good city and country practice. Mixed farming and dairy section. County seat. Good roads. Good pay. Entire equipment all of the best that goes with the business, including simplicity equine operating table, office fixtures, drugs, library, etc. Address 672, VETERINARY MEDICINE 1827 South Wabash avenue, Chicago, Illinois.

FOR SALE—Will turn over practice in South Dakota to anyone buying my office equipment and small amount of drugs for $250.00. Practice runs near $3,500. Nearest competitor 35 miles. Good stock and farming country. Address No. 773 VETERINARY MEDICINE 1827 South Wabash Avenue, Chicago, Illinois.

POSITION WANTED—Graduate Univ. Iowa Dept. Veterinary Science (1915). Any kind position considered, with manufacturers—Veterinarian; in fact any kind position anywhere. Can qualify especially in anatomy, surpical and therapeutical lines. Not afraid of work. Adress 3510 care F. V. Kniest, Peters Trust Bldg., Omaha, Nebr.

IOWA PRACTICE for sale—fine county seat town—Do $9000 year; large territory. Paved streets, large hog raising country. Ideal place to live—many advantages to my deal. Sacrifice price due to ill health. Address 3484 care F. V. Kniest, Peters Tr. Bld., Omaha, Nebr.

"QUICK COLLECTIONS"—Everywhere. Live wire firm! Established 30 years. William H. Dodd, 87 Nassau St., New York. Don't wait, send us your bills today!


W. D. STONE, D. V. M.
Veterinarian
1021 N. 10th St. Omaha, Nebr.
Directions
Gummed Labels at Special Prices.
No. 2188—This Size—1000, $2.25, 3M for $5.10
No. 2189—2⅜ x 3⅜—1000, $3.10, 3M for $7.10
PHENIX BOX & LABEL CO., Kansas City, Mo.

BETTER PRINTING for less money. Send for free samples of letterheads, envelopes, circulars, booklets, cards, etc. They will save you money. Fantus Co., 525 So. Dearborn St., Chicago.

"BOOKS YOU SHOULD HAVE"

(Only publications of special interest to the veterinarian are advertised in this column.)

DISEASES OF THE SMALL DOMESTIC ANIMALS

By O. V. Brumley, Ohio State University

Lea & Febiger, 706-710 Sanson st., Philadelphia

672 pages, cloth. Price, $4.75.

Pammel's

Manual for Poisonous Plants

$7.50 plus Postage and Insurance.

Address orders to

PROFESSOR L. H. PAMMEL

Iowa State College, Ames, Iowa

Free Book "Farm and Home Therapy with Iodine"

Tells how to use this powerful antiseptic remedy in a hundred different ways in household and on farm. Beneficial for man and beast. Write for copy.

Chilean Iodine Producers

25 Madison Avenue New York

The identification tag for animals that IS satisfactory. Used by the B. A. I., most states, and hundreds of veterinary practitioners. Write for sample and price. An ear mark for every purpose. M. H. STOLL, 3012 Webster St., Omaha, Nebr.

The special instructors engaged by the university of California this year to lecture at the short course for veterinarians are:

T. H. Ferguson, Specialist in Cattle Practice, Lake Geneva, Wisconsin; Secretary, Wisconsin Board of Veterinary Examiners.

M. C. Hall, Senior Zoologist, U. S. Bureau of Animal Industry, Washington, D. C.

K. F. Meyer, Professor of Research Medicine; Acting Director, George Williams Hooper Foundation for Medical Research.

W. Pfenninger, Privatdozent, Veterinary Medical Faculty, University of Zurich, Switzerland.

VETERINARIANS GRADUATED

On November 7th, the St. Joseph Veterinary College held a commencement exercise and graduated the following list of young men:

O. R. Baird, Tuscola, Texas.

L. V. Cowton, St. Joseph Vet. College, St. Joseph, Mo.

C. H. Hartman, Mt. Hope, Kans.

M. T. Lewis, Stonewall, Manitoba, Canada.

James E. Kelly, Kilborn, Wis.

E. H. Meyer, Bruning, Nebr.

John T. Schwab, Pabst Holstein Farms, Oconomowoc, Wis.

J. B. Sigrist, Helena, Me.

L. W. West, 753 E. Washington Ave., Madison, Wis.

E. Dewey Wilder, Hattisburg, Mass.

A. E. Wilcox, Cairo, Nebr.

E. E. Yingling, Litchfield, Nebr.

Last year these young men were juniors in this institution and by special arrangements with the chief of the bureau of animal industry, permission was obtained to continue college through the summer season and graduate them this fall. This arrangement was carried out and a splendid course of instruction given them. In fact, I do not think any class has ever been graduated from this college that had a stronger, better regulated course than this one and the young men going out at this time are certainly well equipped to enter the veterinary profession. They are high class young men and I predict for them success in every way.

Last April the college graduated the following gentlemen:

H. L. Bennett, Oneal, Nebr.

L. C. Feichtinger, Fremont, Nebr.

J. E. Burch, Florence, S. C.

Jay Cottingham, Pleasanton, Nebr.

E. R. Davis, Elmo, Mo.

Two Strasco Canine Products

Vitamexol

Each dram represents in palatable form the constituents of:

Oleum Morrhuae 33%
Malt Extract 15%
Hypophosphites Comp....33%
Fresh Prime Beef.....60 gr.

$1.25 pt. $8.00 gal.

Highly recommended as a tonic and builder for dogs, especially during and following distemper.

Terpatone

Each fluid dram contains:

Morphine Diacetyl Hydrochloride 1/64 gr., combined with Creosote Carbonate, Terpin Hydrate, Calcium Glycerophosphate, Sodium Glycerophosphate and Aromatics.
(Does not require narcotic blank.)

$1.25 pt. $8.00 gal.

Useful in Canine Distemper, exceptionally good results obtained when used in conjunction with Vitamexol.

R. J. Strasenburgh Co.
Manufacturing Chemists
Surgical Instruments
Rochester New York

E. R. Fisher, 2408 So. 18th St., St. Joseph, Mo.
R. C. Grubb, 2909 Garfield, Lincoln, Nebr.
W. E. Hoot, Livermore, Iowa.
J. M. Holliday, Lahoma, Okla.
F. G. Kelly, Great Bend, Kans.
J. C. King, 1050 Marietta St., Atlanta, Ga.
P. C. Lahs, Gainesville, Mo.
W. R. Lawrence, Terry, Miss.
C. T. Loy, Braddyville, Mo.
Rease Mitcham, Ruston, La.
T. R. Morse, Hutton Valley, Mo.
W. I. Nelson, West Point, Nebr.
A. N. Overbaugh, Doon, Iowa.
C. E. Schlotthauer, Oconomowoc, Wis.
K. Sears, King City, Mo.
T. J. Sharpe, Coggon, Iowa.
R. H. Slagle, 1124 Lafayette St., St. Joseph, Mo.
N. D. Stanley, Abilene, Kans.
R. B. Station, Marshville, N. C.
F. E. Williams, Webster City, Ia.
J. H. Foley, Oneal, Nebr.
A. C. Garrett, 1413 Penn St., St. Joseph, Mo.
J. L. Boyle, 433 E Military St., Fremont, Nebr.

Owing to the fact that no catalog was issued this year, their names have never been published.

This, also was an excellent class of young men, and deserve the respect of the veterinarians of the country.

At a recent meeting of the Board of Directors of this college, it was voted not to hold a session this year, and committees were appointed to dispose of the real and personal property of the institution. In closing up the institution in this way, it preserves the good name that it has borne among the veterinarians and we trust that the men graduated from it in the last few years will soon be accorded the courtesies due them from all veterinary organizations in the country.

It was the ambition of the writer to continue the college, however, until these men had an opportunity to graduate. Most of them graduated in April, 1923. Two or three who had missed out from one cause or another and others who met the high school requirements and matriculated the next year, constituted the class that graduated on the 7th of November, 1923.

We hope to live to see the day that the A. V. M. A. will retract the injustice done these young men and open their doors to them. They are worthy in every respect and were all matriculated, taught and graduated under the agreement that existed at the time of their matriculation.

(Signed) R. C. Moore.
Sec'y.

FISTONE

"An Internal Treatment for Fistula of the Withers, Poll-Evil, Quittor, Nasal Gleet and Chronic Suppurations"

FISTONE is only a name. The combination of minerals it represents is more than a name. It has proved to have remarkable curative properties in fistula of the withers, poll-evil and other chronic suppurative conditions, where despite surgical treatment the discharge continues month after month.

Our Slogan—"When everything else fails, try FISTONE"

TRY IT! IT WORKS!

In offering this treatment we wish to state that FISTONE will cure in any of the stages of the above diseases if fed as directed.

IT WORKS! TRY IT!

Price, ½ Doz., $5.00; 1 Doz., $10.00, postpaid

To introduce FISTONE, "An internal treatment for Fistula, Poll-Evil, Quittor, Nasal Catarrh and Chronic Suppuration," we will send you One Dozen 12-oz. boxes of FISTONE (Which is GUARANTEED to CURE ONE case of Fistula or Poll-Evil) on receipt of your professional card and $8.00. Try it out on your most difficult case of Fistula, Poll-Evil or Quittor. Note its positive results.

SIGN AND MAIL THIS COUPON

Enclose professional card or stationery. Only One Dozen Boxes of FISTONE for $8.00 to a veterinarian—money returned to anyone ordering twice.
It is mutually understood that all we require is for the full prescription of Twelve 12-oz. boxes of FISTONE be fed according to directions.

FISTONE AND APPLIANCE CO., COLLEGE CORNER, OHIO.
Enclosed find check for $8.00 for which send me ONE DOZEN 12-oz. Boxes of FISTONE, "An internal treatment for FISTULA, POLL-EVIL and QUITTOR," and so forth.

Dr. .....

Address .....

Send for illustrated literature of Dr. C. A. Clark's Automatic Sanitary Operating Table for Vaccinating Swine.

(Continued from page 35)

weather conditions would not permit of exercise in the open and this together with an inadequate ration caused a great loss in the early hatched chicks. The addition of cod liver oil to the ration will prevent the appearance of the disease in chicks reared in the absence of sunlight.

Gout is of minor importance as a nutritional disease of poultry though it is occasionally observed. The exact cause is not understood, however, it may be produced experimentally by feeding a corn ration with insufficient exercise. Both the articular and visceral forms are noted in fowls. The visceral form is seen as a secondary ocndition of many birds dead of nutritional disease.

MILITARY SECTION

(Continued from page 67)

Milwaukee, Wisconsin.
Caldwell, Crawford P.
Wilson, North Carolina.
Gaskill, Ray
New Rockford, North Dakota.

2nd Lieutenants

Melody, George Cleveland
Greensburg, Pennsylvania.
Vanderwarf, Cornelius
1339 Chicago Road, Chicago Heights, Ill.
Wilson, Harold Elliott,
Arenzville, Illinois.
Clark, James P.
P. O. Box 254, Pleasant Hill, Mo.
Hogan, James Henry
Escondido, California.
McDonald, Harold E.
Hastings, Nebraska.
Horn, William Howard
123 E. Elm Street, Cherokee, Iowa.
Klug, John H.
Random Lake, Wisconsin
Gitz, George H., Jr.
St. Joseph, Missouri.
Chapman, William B.
Powersville, Missouri.
McComb, James A.
Fisher, Illinois.
Hudson, Bentley Farnell
Moweaqua, Illinois.
Hixson, Ralph Ward
Falls City, Nebraska.
Hill, Charles Francis
2 Pleasant, Lancaster, New Hampshire.
Shigley, James Fremont
823 W. Beaver Ave., State College, Pa.
Porter, Frederick William
106 W. Ross Ave., Tampa, Florida.

FOR
NINE YEARS

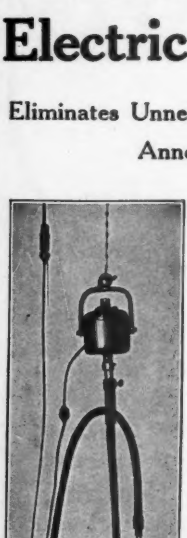
"We have produced anti-hog cholera serum and virus and nothing more; and we believe we have done that well. Our patrons think so too."

GUILFOIL SERUM COMPANY
Offices and Laboratory
18-20-22 North Second Street
KANSAS CITY KANSAS

Here Is a Real Time and Money Saver

The GILLETTE Electric Clipper

Eliminates Unnecessary Work and Annoyance



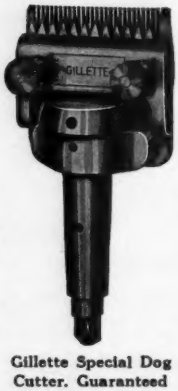
It Clips
Horses, Mules, Cattle and Dogs

It Shears
Sheep and Goats

It Grooms
Horses and Cattle

Operates from Any Electric Socket

Model 1911 Portable Electric Clipping, Grooming and Shearing Machine



Gillette Special Dog Cutter. Guaranteed to Clip Hair of Any Kind of Dog

Send for literature which gives prices and descriptions of all types of hand and power machines; also hand and toilet clippers.

Gillette Clipping Machine Co.
133 West 31st Street
New York City

BIRTHS

Dr. and Mrs. H. M. Hans, Ponca, Nebraska, announce the arrival of a daughter, Severn Beata, eight pounds, December 11, 1923.

"Dr. and Mrs. Harry Seymour, Milwaukee, Wisconsin, thought you would like to know that Luella Emily Marie, weighing 7½ pounds, arrived on December 11, 1923," announces the stork in a letter dropped into the journal office on the 14th.

Master William Joseph, born November 4, is the latest arrival at the home of Dr. and Mrs. Wm. Dohrer, Ayrshire, Iowa.

Dr. and Mrs. Given, Marcus, Iowa, announce the arrival of a daughter, Bernadette, October 27.

Dr. and Mrs. Omer Fleenor, Washington, Indiana, announce the birth of a daughter, Phyllis Jean, November 17, 1923. Miss Phyllis tipped the scales at eleven pounds when she came to this happy family circle.

PERSONALS

Dr. Charles P. Hinkley, Kimball, South Dakota, reported to have been seriously ill in a Sioux City hospital suffering from anthrax contracted while administering anthrax vaccine, has recovered and gone with his family to California to recuperate.

Dr. E. E. Clore, veterinary inspector of the United States Bureau of Animal Industry, after six years of official work among the swine herds of Indiana has resigned to accept the presidency of the Hoosier Mineral Feed Company of Greenwood, Indiana.

Dr. A. C. Middleton has moved from Beaman, Iowa, to Grundy Center, Iowa.

Dr. R. A. Caldwell, of the department of agriculture of California, contracted anthrax from an infection sustained while holding an autopsy on a cow that had died from that disease. The prompt administration of anti-anthrax serum is said to have saved his life.

The Russian Government is contemplating the marketing of large areas of algae in the sea of Asof. The algae in this particular location is especially rich in iodine.

Dr. Marquard, of Atlanta, Illinois, has moved to Bloomington to become the partner of Dr. Alverson, succeeding Dr. R. P. Gingerich, who is retiring on account of ill health.

To the Editor:

I have noticed in the December issue that you named Dr. J. E. Murphy (Indiana '23) as successor to the late Dr. L. G. Hart, Sr. I wish to state that Dr. S. K. Andressen (McK. '16) bought out my father's practice and I hope to see this announced in the January issue. Dr. Andressen was formerly of Barnesville, Minnesota and came to Chippewa Falls October 14.

Chippewa Falls, Wis. J. M. Hart.

Dr. S. W. Haigler, Belleflower, was elected president of the McLean county (Ill.) association at its recent annual meeting. Dr. A. W. Stagner of Hudson was elected vice-president, and Dr. J. S. Koen, of Bloomington, secretary-treasurer to succeed Dr. R. P. Gingerich, who is leaving the state for California, on account of ill health.

Twenty Years—Of Business

We have notice from F. V. Kniest, of Omaha, Nebr.,—The Drug, Medical, Dental, Veterinary, Physicians and Nurses Brokerage—to continue his advertisement.

If you have any wants in above lines—selling, buying, positions, employees wanted—any form of exchange, or wants, write them to Mr. Kniest. Twenty years of service without a break constitutes a long record in these days for a firm and we call your attention to Mr. Kniest's advertisement elsewhere in our columns.

REMEMBER THE TIME—

By Jack Case

Yer used to marvel at a hoss doctor in town who wore a big brown sombrero, a red vest, with dots in it, a big gold fob on his watch chain which represented a gallopin' horse, a cutaway coat of bright green, light-colored trousers an' shoes with elastics in the side and a horseshoe diamond pin in his white cravat an' he was called "Doc" Hay an' people smiled when he passed. But he mended all the hosses' teeth for the Four Hundred in Newport an' you thought he was "hot stuff" an' only wished yer was big so you could learn to be brave enough to fool around a horse's mouth an' dress like "Doc" did.

Remember?

I'll say yer did.

RALSTON SERUM COMPANY — SUPREME SERUM

Read all the other serum ads, combine *all their virtues* and you have

Ralston Serum

Ralston Blood Serum

Ralston Clear Dilute Serum

Ralston Concentrated Serum

Made by Veterinarians
Sold by Veterinarians
Only to Veterinarians

Service
Which Really Serves

Ralston Serum Co.

in the country out of Omaha
Ralston, Neb.

SIMONSON SERUM

U.S. VETERINARY LICENSE NO. 27

TO THE VETERINARY PROFESSION OF AMERICA

We take this means of thanking you for your patronage, courtesy, and good will during the old year.

In return, we wish you Good Health, Happiness and A Prosperous New Year.

THE SIMONSON SERUM FARM

P. SIMONSON, D.V.S., MGR.

HOOPER, NEBR.

DAY PHONE NO. 24 OR 212

AFTER 6 P.M. 1-210 OR R-212